R E P O R T R E S U M E S

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A MASTER PLAN FOR HIGHER EDUCATION IN PENNSYLVANIA.
BY- MCCREERY, OTIS C. AND OTHERS
PENNSYLVANIA STATE BOARD OF EDUC., HARRISBURG

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DESCRIPTORS- *JUNIOR COLLEGES, *MASTER PLANS, *HIGHER EDUCATION, *STATE PROGRAMS, *GOVERNANCE, PENNSYLVANIA,

FROM 1965 TO 1975 LARGE INCREASES ARE PROJECTED IN THE PERCENTAGE OF PENNSYLVANIA HIGH SCHOOL GRADUATES WHO ENTER COLLEGE, AND AT LEAST A 60 PERCENT INCREASE IN TOTAL COLLEGE ENROLLMENT IS EXPECTED. A TRIPARTITE SYSTEM OF HIGHER EDUCATION IS PROPOSED--(1) COMMUNITY COLLEGES WILL PROVIDE HIGHER EDUCATION OPPORTUNITIES FOR STUDENTS WITHIN COMMUTING DISTANCE. COMPREHENSIVE IN SCOPE, THEY WILL OFFER LOWER DIVISION, OCCUPATIONAL, GENERAL, AND ADULT EDUCATION. FINANCING WILL BE A SHARED RESPONSIBILITY OF THE STATE, THE LOCAL SPONSOR, AND THE STUDENT. (2) STATE COLLEGES WILL PROVIDE FOR A LARGE PART OF THE INCREASED INSTRUCTIONAL LOAD THROUGH THE MASTER'S DEGREE LEVEL. EVENTUALLY DOCTORAL PROGRAMS WILL BE INITIATED IN SELECTED FIELDS. FINANCING WILL BE SHARED BY THE STATE AND THE STUDENT, SUPPLEMENTED BY FEDERAL AND PRIVATE FUNDS. (3) THE UNIVERSITY WILL HAVE PRIMARY RESPONSIBILITY FOR EDUCATION IN THE PROFESSIONS, AND WILL BE INCREASINGLY CONCERNED WITH UPPER DIVISION AND GRADUATE STUDENTS. FINANCING WILL BE SIMILAR TO THAT IN THE STATE COLLEGES. EACH SEGMENT WILL HAVE ITS OWN COORDINATING COUNCIL, WITH A COUNCIL OF HIGHER EDUCATION TO WORK WITH THE THREE SEGMENTS. (WO)

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A Master Plan for Higher Education in Pennsylvania

UNIVERSITY OF CALIF.
LOS ANGELES

JUN 15 1967

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JUNIOR COLLEGE
INFORMATION

Prepared
by the
State Board of Education
January, 1967

NC 670 491

A Master Plan for Higher Education in Pennsylvania

Prepared by the

STATE BOARD OF EDUCATION

Pursuant to

The Act of June 17, 1963, P.L. 143 (Act 94)

COMMONWEALTH OF PENNSYLVANIA

HARRISBURG

January, 1967

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333 EDUCATION BUILDING
HARRISBURG
Area 717 787-3787

October 17, 1966

To His Excellency, William W. Scranton, Governor
and
To The Honorables, The Members of the General Assembly
of the Commonwealth of Pennsylvania

Gentlemen:

The State Board of Education has the honor to present herewith A Master Plan for Higher Education in Pennsylvania.

The Board has devoted more than two and one-half years to the development of the Plan. Public hearings have been held across the Commonwealth. More than 30 college and university presidents have sat with the Board in an advisory capacity. Distinguished consultants, both from Pennsylvania and elsewhere, have aided the Board in its studies. The Superintendent of Public Instruction and his staff have participated in its development.

The Board views the Plan as a document which must be responsive to the needs of the Commonwealth. It should be constantly subject to review. It should be re-evaluated and restated at least every four years.

The members of the State Board of Education, individually and collectively, stand ready to assist the Governor and the General Assembly in any way possible in connection with this Plan.

Sincerely,

O. C. McCreery

Commonwealth of Pennsylvania
STATE BOARD OF EDUCATION
Harrisburg

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PREFACE

By the Act of June 17, 1963, P. L. 143 (Act 94), the General Assembly directed the State Board of Education, through its Council of Higher Education, to develop a Master Plan for Higher Education in the Commonwealth.

Act 94 was an amendment to the Administrative Code of 1929. Section 1319, subsection (c), paragraph (1) enumerates one of the powers of the Council of Higher Education as: "Develop a master plan for higher education in the Commonwealth, including a system of community colleges as provided by law." In Section 1317, subsection (a), the State Board of Education is given the power, ". . . to review the policies, standards, rules and regulations formulated by the Council of Basic Education and the Council of Higher Education, and adopt broad policies and principles and establish standards governing the educational program of the Commonwealth . . ."

Recognizing the urgency of developing a Master Plan, the State Board of Education entered into contracts with four outside agencies to provide relevant information and to make analyses and proposals which would both shorten the time necessary for the preparation of a Master Plan and add an element of objectivity based on national, rather than Commonwealth, experience.[1] These reports have all been received and have been closely scrutinized, to the end of presenting in 1966 a Master Plan whose essential portions could be put into effect rather quickly.

This Master Plan is designed to meet a situation in which a burgeoning college-age population and a growing demand for collegiate instruction and services face higher education resources that are inadequate to the task. The Master Plan is intended to be directional, to be sufficiently delineated to permit day to day decisions within its framework, and to provide orderly development. At the same time it is designed as a living document, one which will continue to develop and change as new ideas and facts emerge from experience and from a continual process of evaluation.

Since higher education has developed in the Commonwealth without benefit of long-range planning, it is too much to expect that a completed logic can result at this particular stage. The impelling demands for further extension of higher education will not, however, permit additional delay in designing what can properly be called "A Commonwealth System of Higher Education", lest additional complications develop and the young people of the Commonwealth be the victims.

The Master Plan takes cognizance of the wide variety of higher educational institutions in Pennsylvania. Its effectiveness is based upon using the influence and the existing facilities and programs of all Pennsylvania colleges and universities, public and private. The problem is not one of deciding in favor of some and against others, but, rather, that of deciding what roles each can play most effectively and where the Commonwealth's responsibility for organization and financing rests. The report gives major concern to publicly-supported education, its availability, its range of programs, its fiscal management, and its planning. This in no wise alters the position of the State Board of Education that the dual system of public and private education is a strength in the total picture and that the Commonwealth should take certain steps better to enable private institutions to make their appropriate contribution to the extension of education opportunity. One of the Commonwealth's major purposes must be to provide, in both public and private institutions, an undeniably high quality of higher education.

The decisions which the Board has made have in many cases been difficult. Yet they must be made if the Commonwealth of Pennsylvania is to meet the demands for higher education. The Board is deeply grateful to the organizations and individuals who have assisted in the development of this document.[2]

The State Board of Education believes that the Master Plan for Higher Education must be a living document, alert to the changes in demands upon higher education. The Master Plan should be reviewed continually and should be completely restated at least every four years.

The Master Plan is submitted with the full conviction that the Commonwealth and its higher educational needs will be served best by its immediate implementation.

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[1] (1) Donald D. Dauwalder and Associates: The Administration and Financing of Vocational-Technical Education in Pennsylvania. December, 1964.
(2) Earl J. McGrath: The Organization of the State Colleges Within the Commonwealth of Pennsylvania. May, 1965.
(3) Ralph R. Fields and Associates: Community Colleges in Pennsylvania. June, 1965.
(4) Academy for Educational Development, Inc.: Elements of a Master Plan for Higher Education in Pennsylvania. December, 1965.

[2] In addition to the members of The Advisory Committee on the Master Plan, the Board is indebted to Dr. Paul H. Masoner, Dean of the School of Education of the University of Pittsburgh and especially to Dr. Paul R. Anderson, Vice President for Academic Affairs of Temple University, and Dr. Donald H. Ford, Assistant to the President of The Pennsylvania State University. Dr. Anderson and Dr. Ford drafted reports for the Council of Higher Education and worked closely with both Council and Board on preparing The Master Plan.

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Severino Stefanon, Secretary
State Board of Education
333 Education Building
Harrisburg, Pennsylvania
17126

A Summary Statement of

THE MASTER PLAN FOR HIGHER EDUCATION IN PENNSYLVANIA

The Master Plan prepared by the State Board of Education is built upon the basic conviction that Pennsylvania's purpose is to create a physical, social, and economic environment which enables its citizens to live constructive, meaningful and satisfying lives. This objective requires the maximum development of Pennsylvania's human resources. The role of higher education in this endeavor is fundamental. The investment of public funds in higher education is growing rapidly. Therefore, it is essential to formulate public policies for higher education in Pennsylvania to insure adequate resources and orderly growth in the future.

Pennsylvania has been moving to develop higher education resources, but too slowly, both in terms of the rapidly increasing demand for higher education and in comparison with other states. The situation is urgent. The Comonwealth has much to do in order to catch up, to move ahead, in providing better opportunities for higher education for Pennsylvanians.

The Plan is presented as a living document, providing a framework for immediate policy decisions, with sufficient flexibility, however, to permit reappraisal, review, and re-direction in the light of changing circumstances and needs. The Plan focuses on the period between now and 1975. However, it is proposed that it be subject to continual review, and be completely re-stated at least every four years.

In a very real sense, the Master Plan is a guide for the State Board of Education itself, particularly for the Council of Higher Education, as it continues to formulate its policies, to seek state-wide coordination of programs, and to formulate its recommendations for Commonwealth financial support of higher education. The Plan is, therefore, a series of goals, targets, and directions which, if embraced and approved as public policy by the Governor and General Assembly, can provide a rationale for specific decisions as they must be made.

Major Proposals of the Plan

Students, Enrollments, and Programs

The objective is to make it possible for each Pennsylvanian to develop different talents and interests at different periods in his life for different purposes, as he is prepared and willing to do so. Every person should have available a variety of post-high school educational opportunities which he might use to achieve his objectives and further his development. This plan encourages the development of three types of associate degree programs, baccalaureate degree programs, graduate, professional, post-graduate and research programs, and a great variety of non-degree, continuing education and community service programs. Specifically, the Plan makes these recommendations:

1. Statistical projections indicate that an increase in the percentage of high school graduates entering college from the 1965 figure of 36% to at least 51% by 1975 must be prepared for. Programs proposed in this report may raise that percentage significantly.
2. An increase is anticipated in the total full and part-time enrollment of institutions of higher education from the 1965 figure of 293,970 to a minimum of 518,000 by 1975.
3. The fundamental importance of graduate education and research is emphasized. A doubling of enrollments at the doctoral level is projected and other graduate and professional enrollments are expected to increase at least one and one-half times.
4. Special arrangements are proposed to help meet the need for at least 27,000 new faculty members who will be needed by the institutions of higher education in the next ten years.
5. By 1975, enrollments in institutions included in a proposed Commonwealth System of Higher Educa-

tion will include 56% of all college students in Pennsylvania. This is up 11% from the current level of 45%, even though the Plan gives encouragement to private institutions to continue the rate of growth they have maintained during the last five years. That would lead to an increase in their enrollments of over 65,000 students by 1975. The Plan emphasizes that its success will be evaluated not only in terms of the number of students admitted to college, but also in terms of the proportion who graduate.

6. Expansion of opportunities at the community college level is planned, to provide opportunities for higher education within commuting distance of every Pennsylvanian.
7. Cooperative arrangements among universities, colleges, and community colleges are encouraged, to increase the potential for research and scholarly activity, to encourage diversity and quality of programs, and to provide maximum flexibility of student choice and development.
8. The growing future importance of continuing education and community service is emphasized. A task force to conduct a state-wide analysis of needs, resources, and current programs in this educational field is proposed, as a prerequisite to an effective and substantial expansion.

The Commonwealth System of Higher Education

Pennsylvania has arrived at a point where it should establish a clearcut program of public higher education while encouraging the continuation of the Commonwealth's long-standing and valuable tradition of private higher education. The Plan describes an institutional framework for a Commonwealth System of Higher Education which embraces the following elements:

1. Those institutions which are legally and organizationally committed to the implementation of public educational policy and which are subject to a substantial degree of public control. Those institutions will have first claim on Commonwealth financial support, in accordance with a plan to determine such support and to allocate it among the institutions.
2. Institutions included in the Commonwealth System shall meet the following criteria:
   a. Commonwealth representation on the governing board and its executive committee of at least 33% of the membership.
   b. Not less than 70% of undergraduate enrollment shall consist of Pennsylvania residents.
   c. A state-differential tuition and fee structure, with an out-of-state differential of at least 2 to 1.
   d. Financial operations are subject to public audit.
   e. A commitment to assisting in the resolution of social and economic problems in the Commonwealth.
   f. The general purposes of a university, college or community college are served rather than the limited purposes of a single professional, or vocational, program.
   g. The Commonwealth assumes a legal and major financial responsibility for operating and capital expenses.
3. The Commonwealth System of Higher Education shall be organized into three segments, each segment including different types of institutions.
   a. Community College Segment—All community colleges authorized by the State Board of Education. (Presently, ten)
   b. State College Segment—the thirteen state colleges and Indiana University of Pennsylvania.
   c. Commonwealth University Segment—The Pennsylvania State University, Temple University, and the University of Pittsburgh.

Responsibilities of the Segments of the Commonwealth System of Higher Education

1. Community Colleges should be provided throughout the state, making commuting possible for the preponderant number of students who seek this level of education. It is expected that many more than presently approved will be needed.
2. The programmatic, organizational, and financial pattern of the community college shall be followed in the expansion of two-year educational opportunities. No new branch campuses of existing colleges or universities should be established. Wherever possible, existing branch campuses should be combined with, or converted into, community colleges.
3. The State College segment should provide a sizeable portion of the increased baccalaureate level instruction required during the next ten years, and develop increasing strength in master's degree work. This will lay the foundation for eventually providing doctoral programs in selected fields.
4. The Commonwealth University segment will continue to provide and expand both undergraduate and graduate programs, but the proportion of students enrolled in junior, senior, graduate and professional programs will increase as freshman-sophomore instruction in community colleges grows. The major proportion of the proposed increase in graduate enrollment at the doctoral level and the preponderant portion of the proposed expansion in professional work will be the responsibility of this segment.

Financing the Commonwealth System of Higher Education

A purpose of this Plan is to guarantee the availability of quality higher education at low cost to the individual student. However, tuition for higher education, no matter how small, may serve as a barrier to enrollment for some students. Therefore, consideration should be given to gradual tuition reductions at institutions in the Commonwealth System, perhaps eventually to the point of free tuition, at least for Pennsylvania students from low income families. The Plan seeks to establish an approach to the allocation of public funds for higher education which is based on clearly-defined factors combined into objective formulas. The formulas for different segments in the Commonwealth System will vary:

1. The principle of shared fiscal responsibility for the Community College segment has been established in law. The student, local sponsor, and state government share the burden of operating budgets while the state and local sponsor share the burden for capital expense. The formula should continue, at least until more experience is accumulated.
2. It is proposed that special financial aid be provided to encourage areas that are proposing community colleges to do a more careful job of planning and preparation before opening a new community college.
3. In the State College and University segments, the student and the state should share the financial responsibility, supplemented by funds from the federal government and private sources. For these two segments, it is proposed that operating budgets be planned on the basis of factors reflecting annual changes in costs due to (a) enrollments (b) changes in the price index and (c) qualitative improvements. The proposed factors include an enrollment factor, per-student cost factor, faculty salary increase factor, faculty augmentation factor, departmental research factor, plant maintenance factor, and a continuing education and community service factor. It is proposed that these factors be tried for two years to determine whether they are adequate to establish a formula.
4. It is proposed that a formula for capital improvements be developed, emphasizing increased enrollments, occupancy rates, and replacement of obsolescent facilities.
5. It is proposed that funds for all institutions in the Commonwealth System should be included in the preferred category of state appropriations. (All but the Commonwealth universities are now included.)
6. Increased flexibility in using state funds to attract federal funds for capital improvements is proposed.

Governance of the Commonwealth System of Higher Education

A pattern of governance is proposed for the Commonwealth System of Higher Education which places primary responsibility for planning and development in the hands of the institutions and segments of the System. It gives the responsibility for coordinating the effort to avoid unnecessary overlap and duplication to the Council of Higher Education. It is believed that this approach will produce creative development of quality programs in an efficient and economical manner. Coordination and cooperation among the institutions in each segment are encouraged and mechanisms for this purpose are proposed.

The Community College Segment

1. It is proposed that a Community College Coordinating Council be established, the membership to be composed of one person representing each community college, with the Commissioner of Higher Education (as planned in the proposed reorganization of the Department of Public Instruction) as the ex officio presiding officer. The functions of the Council would be to help coordinate programs and to consider all matters which may add to the effectiveness of the institutions.

The State College Segment

1. It is proposed that a State College Board of Trustees be established, to be appointed by the Governor from a panel nominated by the Council of Higher Education. Such Board would have an executive officer and appropriate staff and would be served in an advisory capacity by the Board of Presidents of the colleges.

The State College Board of Trustees would assume the functions and duties now assigned to the Boards of Trustees of the individual State Colleges and to the Board of Presidents, but it is proposed that the Boards of Trustees of the respective institutions become Boards of Visitors, with responsibilities of an advisory nature to the president of the college on programs and plans and to the State College Board of Trustees on the selection of a president.

2. Greater fiscal and administrative autonomy shall be granted at the institutional level, and the range of responsibilities and authority of each president shall be spelled out in conformance with policies and programs established by the State College Board of Trustees.

The University Segment

1. It is proposed that there be established a University Coordinating Council, composed of three representatives selected by each university in the segment, with the Commissioner of Higher Education serving ex officio as the presiding officer.

The functions of the Council would be coordinative, planning and advisory in nature. Its recommendations concerning new programs, uniformity of standards, and institutional appropriation requests, would be made to the Council of Higher Education.

State Coordination of the Segments

1. It is proposed that coordination of the work of the Community College Coordinating Council, the State College Board of Trustees, and the University Coordinating Council be the responsibility of the Council of Higher Education.
2. It is also proposed that the office of Commissioner of Higher Education be established in the Department of Public Instruction, and that the Commissioner act for the Superintendent as the chief executive officer of the Council of Higher Education.

   (Note: A similar proposal for a Commissioner of Basic Education to serve the Council of Basic Education is included in the reorganization of the Department of Public Instruction)
3. The development of a top quality professional staff in the Department of Public Instruction, to serve the Council of Higher Education is recommended. An adequate salary structure is essential to achieve this objective.

Aid to Students and Potential Faculty Members

Scholarships

A sizeable scholarship program is essential to insure that needy students can finance a college education and have freedom to select the kind of institution which fits their purposes.

1. The present scholarship program should be expanded to an annual figure of $40,000,000 by 1968-69, at which point careful evaluation should be made to determine amounts for ensuing years.
2. The guaranteed loan program now in operation should be continued and expanded, if further study and experience proves it desirable.
3. The current Department of Public Instruction competitive scholarships and the senatorial scholarships should be phased out.

A Professorial Incentive Program

Critical to the success of the expanded higher education program is the recruitment and training of faculty personnel. Therefore, an incentive loan program is proposed through which prospective college teachers may borrow up to $6,000 over a three-year period for full-time graduate education. The loans would be non-interest bearing while the student is in school. They should be forgiven at a rate of 25% per year for every year the recipient teaches in a Pennsylvania institution of higher learning.

The Commonwealth and Private Higher Education

The Master Plan recognizes the important contribution in higher education of independent institutions. It also recognizes the propriety of the preference of some students to secure their education in private institutions. These institutions in Pennsylvania presently enroll over 160,000 students and present growth rates, if continued, would lead them to expand to approximately 226,000 students by 1975. They provide extensive educational resources and relieve the Commonwealth of a major financial obligation. To encourage their continued existence and expansion, some clearly-defined forms of financial assistance are proposed to replace the present pattern of general maintenance aid.

1. Financial support is proposed for doctoral programs in the arts and sciences, engineering, medicine and in veterinary medicine, this support to be available to all institutions not members of the Commonwealth System. This aid is to be based on a grant of $5,000 per year for each full-time student who has completed at least one year of post-baccalaureate study and who is accepted for candidacy in doctoral programs in arts and sciences and in engineering, and a grant of $5,000 per year for each full-time post-baccalaureate student in medicine and in veterinary medicine.
2. A Commonwealth Capital Assistance Fund should be established to encourage private institutions to expand, based on demonstrated need and limited to 33⅓% of cost for instructional facilities, the fund to be managed by a body similar to the existing State Commission on Academic Facilities.
3. The present arrangement for state aid to private institutions should be terminated, but in order not to damage institutions presently receiving such aid, those institutions not qualifying for doctoral program support should have their appropriations frozen at present levels. No additional private institutions should be given such appropriations.

4. To provide a voice for private higher education in the development of Pennsylvania's total program of higher education, a liaison committee for private higher education is proposed. Its function would be to advise the Council of Higher Education with respect to plans which might affect the development of such institutions and to recommend ways of strengthening inter-institutional efforts among both private and publicly-supported institutions.
5. Those presently-aided institutions which qualify for support for doctoral programs should have their present level of support maintained until aid for doctoral support equals that amount, at which time maintenance aid should be discontinued.

Estimated Costs to the Commonwealth

To fulfill the objective of catching up and moving ahead in the development of higher education in Pennsylvania, a major increase in financial support by the Commonwealth will be required.

1. Based on the best information available, it would appear that the State's responsibility for operational costs for 1971-72 might approach the following estimates:

a) For the Comonwealth System	$282,000,000
b) For independent institutions	27,000,000
c) For scholarships	40,000,000
d) For professional incentive program	4,000,000

Present authorizations by the General Assembly for these same categories approximate $157 million for 1966-1967.

2. By 1971-72, the States responsibility for amortization of capital development may increase by $30,000,000.

Summary Comment

The Master Plan attempts to bring order into higher education. It does this by defining responsibilities of its component segments, by presenting a rationale for fiscal support, by refining procedures for coordination, and by presenting bases for the encouragement of private institutions. It thus attempts to bring order into higher education and through this to offer means by which the Commonwealth can fulfill its higher education obligations to its citizens.

Chapter I

INTRODUCTION

The proposals in this report are about the people of Pennsylvania—particularly the young people—and their personal, social and economic welfare.

Pennsylvania's Resources and Their Development

Pennsylvania is blessed with a wealth of natural resources, and their use has made it a great state. Its rich and varied land and water resources make it an agricultural center for the densely populated middle Atlantic region. Its manifold mineral resources contribute to its industrial leadership. Its geographic location enables it to serve as a major transportation artery between the markets of the midwest and the east coast, stimulating the development of its harbors, highways and railways. Its natural and varied beauty impresses artists, sportsmen and vacationers. For decades, Pennsylvania has recognized the fundamental importance of these natural resources and has made their development a matter of public responsibility.

But, Pennsylvania's greatest resource is its people. Without their vision, talents, and energies, its natural resources are wasted. It is they who must build a prosperous economy and a social order in which each person can lead a meaningful and satisfying existence, in peace and harmony with his fellow man. All else should serve this human objective. Therefore, the development of Pennsylvania's human resources must be a most fundamental public responsibility. It requires the formulation and continuous development of broad public policy.

Knowledge as a Tool for Developing Resources

The successful development of Pennsylvania's physical and human resources rests upon the foundation of knowledge and man's skill in using it. One of man's great triumphs has been the gradual recognition that he can do more than simply adapt to and learn to live with his environment. Man has recognized that he can shape and modify his physical, social and economic environment to fit his own ends. It has been the inexorable march forward of man's knowledge and skill that has given him this realization and power. That march must continue.

Every culture devises ways of creating new knowledge, discovering new skills, and passing these on to the following generations. The United States has recognized that this process is prerequisite to all else in our country. It has sought to create a formal system of education through which people can master knowledge and skill and continuously keep abreast of new discoveries and convert them to significant human uses. The scientific method of thinking, observing, and verifying, developed to precision in institutions of higher learning, has become a powerful tool in creating new knowledge and in helping men master their environment and themselves.

Educational Institutions as Social Instruments

Thus, education has become a cornerstone of our society, an instrument for stability and improvement. For over a century, Pennsylvania has constructed a system of public elementary and secondary education available to all, tailored to individual differences and aspirations, committed to educating the handicapped as well as the healthy, the economically and socially deprived as well as the more advantaged members of the Commonwealth.

As the Commonwealth succeeded in enabling the great majority of its young to achieve a high school education, as the population expanded, as knowledge exploded, and as the technological revolution accelerated, the public welfare has increasingly come to be dependent upon the development and dissemination of knowledge and skills beyond the scope and competence of the elementary and secondary public school system. Thus, problems of higher education have become a matter of basic public concern, requiring the kind of fundamental decisions about public policy that were made many decades ago in the areas of elementary and secondary education. The formulation of a Master Plan for Higher Education is intended to be the next step in the development and implementation of such policies. It is not the first or only step that has been taken and it will not be the last. Therefore, a brief examination of how higher education has developed in Pennsylvania and where it stands today

along with a look at some of the factors influencing it, may provide a useful perspective on the proposals which will follow.

The Private Tradition of Higher Education

The Commonwealth possesses some of the oldest institutions of higher learning in America. As befitted political, social, and economic leaders of the colonial period, small groups of influential people began to found and finance private institutions of higher education. These early founders were usually church groups implementing their social philosophy. With increasing demand, more and more private colleges and universities were established. Today, there are 118 of these institutions in Pennsylvania. These institutions, through vision and leadership, have provided increasing opportunity for the youth of Pennsylvania for a century and a half and have relieved the Commonwealth of a sizeable financial responsibility.

Beginnings of a Public Tradition

In the nineteenth century, the revolutionary concept of public elementary and secondary education began to win acceptance and school enrollment expanded rapidly. The need for teachers became critical. By the 1920's, the needs were so great that the Commonwealth had to assume a major responsibility for preparing elementary and secondary school teachers by converting existing normal schools into state teachers colleges with full Commonwealth responsibility for their operation.

In the 1860's, the Congress of the United States initiated another stream of development. The Morrill Act (1862) sought to stimulate the development of institutions in the various states initially emphasizing instruction in agriculture and the mechanical arts. Pennsylvania responded, designating the Agricultural College of Pennsylvania as its land-grant college. Since 1887, the General Assembly has made maintenance and building grants to what is now The Pennsylvania State University and in 1905 the Governor was empowered by the General Assembly to name six college trustees.

Concurrently in the latter part of the nineteenth century, the Commonwealth made grants to the University of Pennsylvania for its school of Veterinary Medicine and the University of Pittsburgh for its School of Mines. In 1903, the University of Pennsylvania began to receive grants for general maintenance; in 1907, the University of Pittsburgh; and, in 1911, Temple University—because of their general service to the Commonwealth. Several other private institutions have also received state aid from time to time. However, the more the system of state aid for general maintenance has developed, the more vague its rationale has become.

Current Trends Toward a Clearly Formulated Public Tradition

Following World War II, Pennsylvania's pattern of higher education began to appear inadequate to meet future demands. In the immediate post-war years, attention centered upon the problems of rapid expansion necessary to educate adequately the flood of World War II veterans returning to renew their lives by furthering their education with the support of the GI Bill.

Once that spurt of growth had been accomplished (a task which to some had initially seemed almost overwhelming), educational, governmental, legislative, and civic leaders recognized that the growth of higher education had really only begun. Several factors made this obvious. First, the post-war baby boom was already placing a crushing burden on the elementary and secondary schools. It was easy to predict the arrival of those students at the colleges and universities in the mid-1960's. In addition to the increasing number of potential students, more and more high school graduates were seeking higher education. Moreover, increasing demands were being placed on research and graduate education.

As a result, state-wide concern for the development of higher education began to translate itself into action at the state level through advisory committees and councils appointed by various governors, through studies and planning efforts initiated by the Pennsylvania Association of Colleges and Universities, and through planning and proposals by individual institutions.

These efforts stimulated a growing public discussion concerning Pennsylvania's responsibility for public higher education and its relationship to private higher education. Periodically, significant legislative action has been taken. In 1961, the State Colleges were authorized to develop liberal arts programs and to grant the degree of Bachelor of Arts. Previously, in 1957, authorization had been granted for two State Colleges to offer the degree of Master of Education. Since then, nine additional State Colleges have been approved for the same degree.

In 1965, through legislative action, Temple University became state-related. In 1966, similar legislation was enacted granting the University of Pittsburgh the same status.

By the 1960's it became apparent in Pennsylvania, as in other states, that major new responsibilities toward public higher education were being assumed.

The conviction grew that state-wide planning and coordination were essential if Pennsylvania were to have quality higher education in the volume it needed and at reasonable public cost. As a result, legislation was enacted in 1963 establishing a State Board of Education, with a Council of Basic Education and a Council of Higher Education. The Council of Higher Education was mandated to develop a Master Plan for Higher Education to guide the development of future public policy and legislative action. Thus, social pressures that could not be ignored, educational and legislative leadership of considerable vision, and Pennsylvania's hopes for the future have led the Commonwealth to the point where it needs a Commonwealth System of Higher Education and public policies to guide its growth to provide additional low-cost educational opportunity to college students.

A Crisis Exists

There is great urgency about the decisions to be made. Pennsylvania has been moving, but too slowly. A flood of college age students is now inundating the colleges and universities. Unless Pennsylvania moves rapidly to meet this challenge, thousands of qualified young men and women will be unable to obtain a college education in Pennsylvania.

Pennsylvania must make hard decisions about critical issues, promptly. Not to do so would be to abdicate responsibility. Pennsylvania has much to do in order to catch up, to move ahead, in providing better opportunities for higher education. In recent years, the Pennsylvania Legislature has demonstrated that it is prepared to face the challenge.

Higher Education Defined

The State Board of Education had adopted the following definition:

> Higher education includes any organized program of instruction or research primarily concerned with a field of organized knowledge, related theory, and associated practice, which is administered by a collegiate institution authorized to award academic degrees, and which is systematically pursued, on a full-time or part-time basis, by persons who have completed the secondary school or who demonstrate equivalent competence through appropriate means.

This definition has several implications which should be made explicit. First, it draws a distinction between post-high school education and higher education. Institutions of higher education provide a significant proportion of the post-high school education, but not all of it. Many industries and labor unions conduct what amount to extensive educational programs to develop work skills for employes or members. Similarly, it is expected that vocational-technical high schools will be providing programs of post-high school vocational and technical education for adults in their communities. A variety of proprietary schools, such as those in the field of business, provide specialized vocational programs. In addition, many communities have adult education programs of considerable scope administered by community agencies, such as a recreation department, which provide opportunities usually focused on objectives other than the development of work competencies. All of these forms of post-high school education are important and should be cultivated. However, the major thrust of organized higher education is of such dimensions in its own right that the State Board of Education has decided to focus this report primarily on recognized academic institutions of higher education. The Committee for Vocational Education of the State Board for Vocational Education is currently studying the extent and kind of post-high school vocational education needed and intends to make proposals at a later date involving the use of all types of institutions.

Second, the definition implies a concern not only with the variety of educational opportunity available, but with quality as well. The phrase "authorized to award academic degrees" has real meaning since there is a variety of accrediting procedures which influence the granting of such authorization.

Third, the definition does not specify an age group, since higher education is expected to serve adults of all ages.

Objectives of the Master Plan

A Master Plan should not be expected to incorporate answers to all the present or future problems in higher education. In this Master Plan, the Board attempts to provide the broad outline of public policy, within which framework specific problems can be studied and resolved. The essential objectives of this Master Plan are:

1. To define the characteristics of the people to be served by higher education and to describe the growth of opportunity that will be essential to accommodate them between now and 1975.
2. To describe the range and extent of programs necessary to permit each person to select that program which will be appropriate to his abilities and interests as well as to the Commonwealth's needs and to emphasize the importance of developing educational excellence while serving large numbers of students.

3. To initiate a clear tradition of publicly-supported higher education by recommending a Commonwealth System of Higher Education which includes those general-purpose institutions which accept a public commitment and for which the Commonwealth has legal responsibility and to clarify and coordinate the responsibilities for different types and levels of programs among these institutions.
4. To provide a system for the equitable distribution of Commonwealth funds for operating expenses and for capital expenditures among the institutions included in the Commonwealth System of Higher Education.
5. To present a system for Commonwealth policy-making and administrative leadership to insure a coordinated and economical development of a quality program of higher education in Pennsylvania, while retaining initiative and flexibility of operation for the individual institutions.
6. To make it financially feasible for students to attend the publicly-supported or private institutions of their choice and to provide incentives for the development of new faculty members.
7. To encourage private institutions to expand.
8. To make estimates of the increase in total cost to the Commonwealth that this plan will require during the next five years.

The strategic importance of a Master Plan at this point lies in greater realization of what the Commonwealth must do in order to achieve its social objectives in a creative, orderly and economic way. Unfortunately, education is not a commodity which can be purchased on short notice. It is a long term public investment and, for this, wise planning and careful administration are necessities.

Pennsylvania's Higher Education Community

This report considers Pennsylvania's program of higher education in two institutional groupings. One is a group of institutions for which the Commonwealth has legal responsibility, and this group is referred to as the Commonwealth System of Higher Education in this report. The second is the group of private institutions, including church-related institutions, which are expected to continue to make a major contribution to Pennsylvania higher education.

To further evolve a comprehensive, high quality program of higher education in Pennsylvania, the development of the total higher educational community must be considered. It is essential that the development of the private and public groupings be correlated in such a way that both can flourish, fulfilling their own roles. However, this report gives its greatest attention to the Commonwealth System of Higher Education and its problems because this is the portion of Pennsylvania's higher education community for which the Commonwealth has fiscal, as well as legal responsibility.

Chapter II

STUDENTS AND ENROLLMENTS

In the popular image higher education is concerned with the provision of education opportunity immediately beyond secondary school. In today's world, however, higher education must serve more than 17 to 20 year old students. While the younger age group still predominates, increasing numbers of more experienced adults are continuing their education. For example, in 1963 approximately 17% of all 20 to 25 year olds in the United States, 5% of the 25 to 29 year olds, and 2.5% of all the 30 to 35 year olds were enrolled in colleges. And this does not include the many mature adults seeking to update their earlier education by participating in continuing education programs.

Pennsylvania must have a program of higher education which provides the opportunity for each person to develop different talents and interests at different ages for different purposes as he demonstrates that he is prepared and willing to do so.

Characteristics of Students

People Have Different Talents

American higher education has long rejected the idea of requiring all students who go to college to fit one mold. Rather, it has been assumed that each person has his own pattern of talents which can be cultivated. The goal has been to help the student identify his abilities and to select a program of study in which those abilities can flourish.

An adequate system of higher education will provide a variety of programs requiring different talents, a variety of levels of programs within each kind for students of differing degrees of talent, and ease of movement from one kind or level of program to another, as a student's talents develop or as he changes his mind about what he wishes to emphasize.

People Have Different Interests and Aspirations

Not only do people differ in their talents, but they learn to enjoy different things and to seek different accomplishments. Some students enjoy abstract theory while others like to do something concrete. Some find chemistry exciting, others become absorbed in literature.

Here, as with abilities, what people enjoy and the goals they seek may change with experience. Pennsylvania needs a program of higher education which will enable a student to shift his emphasis, where his abilities are appropriate, when his interests and goals change. It should also enable a person to return to higher education periodically throughout his life to learn things relevant to newly-developed interests or to update his education in areas of continuing interests.

People Change and Can be Helped to Change

Students are generally admitted to a program of higher education on the basis of their present level of development and performance and an estimate of their potential for further academic study. Pennsylvania should seek to make available for each person with the equivalent of a high school education, who wishes to continue or renew his formal education, a kind and level of educational program appropriate to the student's potential and current level of aspiration and performance. The fundamental objective should be to enable each student to start in any program in which he has a reasonable chance for success, and to move on to other programs as his performance demonstrates his capacity to handle them. The kind and level of program a student enters should be determined jointly by the student's desires and the institution's judgment as to his present qualifications. However, this is only the starting point. The future should remain open.

Students often change as they mature and latent talents may develop. Poor high school grades do not necessarily mean the person is incapable of handling college programs. This is particularly true for students who come from culturally impoverished environments and from homes where low value was placed on education. Their environment often lacks the stimulation and experiences which develop the abilities and interests essential to good school work or the aspiration to continue schooling. For such students, simply offering the opportunity for higher education is not enough. Those with the potential for collegiate study must be sought out and they must be encouraged to

go on with their schooling. They must be given special help to overcome present educational handicaps so they can succeed. They must be convinced that the opportunity is for them, too.

All of this has practical implications. First, there should be a place in Pennsylvania's higher education system for students with weak records of high school performance, but for whom other evidence indicates potential which has not yet been cultivated. Such students will need special attention and special programs to help them transform their potential into effective performance.

Second, there is no reason to believe that every student should enter college as soon as he finishes high school. Sometimes a year or two of significant involvement in other activities provides a necessary degree of maturity basic to becoming a college success rather than a college failure. This has been demonstrated many times by students who worked a year or two between high school and college, and by veterans who returned to college. This attitude requires flexible admissions policies in higher education so that poor school grades as a teen-ager will not forever prohibit a person from pursuing a collegiate education.

Not everyone should have a college education. There are numerous avenues of life activity for which higher education is not a prerequisite which are rewarding and meaningful in their own right. On the other hand, higher education is becoming increasingly important. Not to make the opportunity available is to leave the promise of a democratic society unfulfilled.

Enrollment Projections

Total Enrollments

In fall of 1965, institutions in Pennsylvania coming within the definition of higher education presented in this report enrolled a total of 293,970 students, of whom approximately two-thirds were full-time students and the remainder part-time. This included full-time and part-time undergraduate and graduate students at all degree levels. What can Pennsylvania anticipate for the future?

This report estimates future enrollments on the basis of existing trends as the minimum number of students to be expected in the future. A number of actions already taken in Pennsylvania, such as tuition reductions at some institutions and a rapidly increasing scholarship program, along with actions proposed in this report may produce a significant increase over the minimum number of students projected under existing trends. At this time, it seems wise to define minimum growth rates on which firm plans can be based, with the expectation that these should be revised as the impact of the Master Plan and other new efforts and programs is felt.

Using present trends in enrollments in elementary and secondary schools, in the grade by grade holding power of each grade, in school population migration, in high school graduation rates, and in college attendance rates, statistical projections of the Department of Public Instruction[1] indicate that by

[1] Projections of Selected Educational Statistics for Pennsylvania to 1975-1976.

FIG. 1

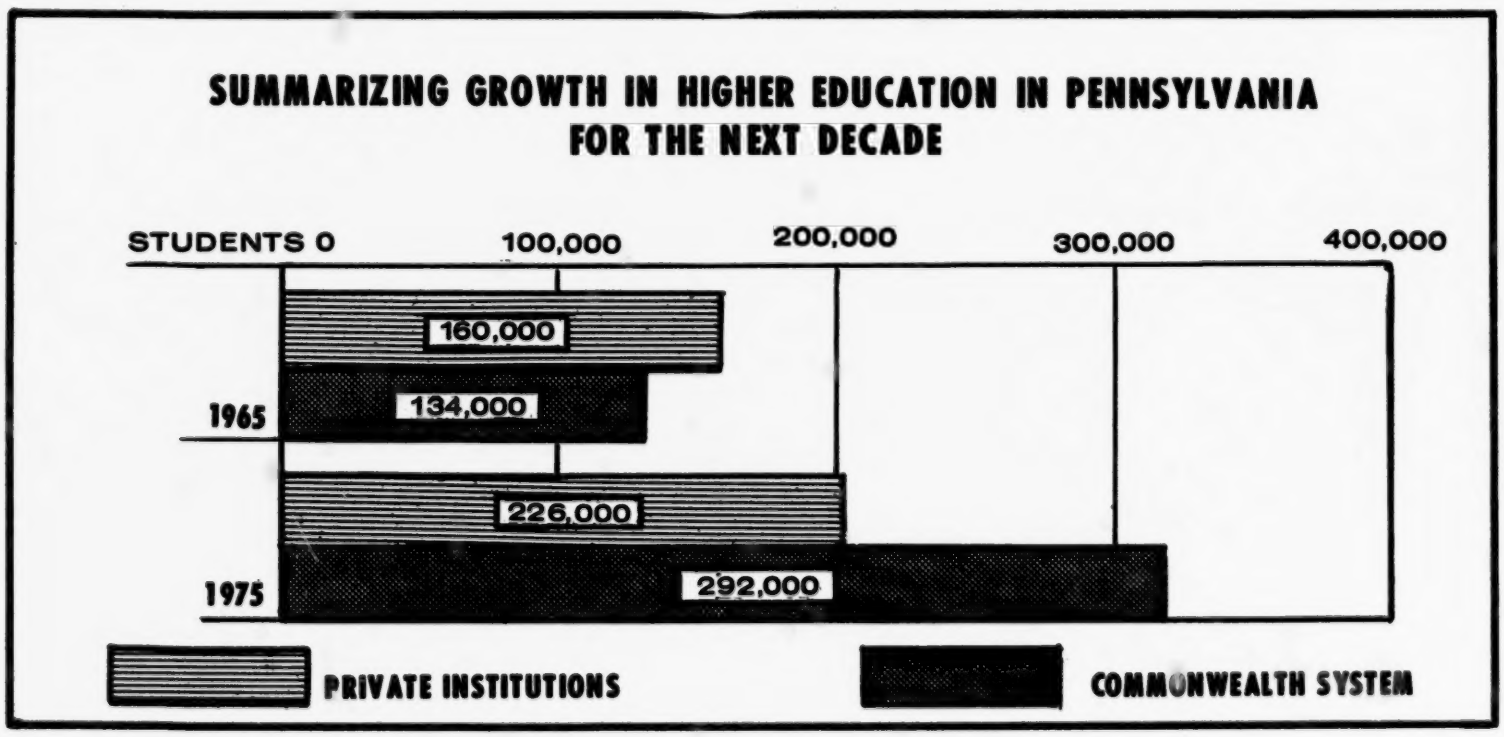


FIG. 2

	DISTRIBUTION OF COLLEGE STUDENT ENROLLMENTS AMONG PENNSYLVANIA INSTITUTIONS				
	COMMUNITY COLLEGES	STATE COLLEGES	COMMONWEALTH UNIVERSITIES	PRIVATE INSTITUTIONS	TOTALS
1965	19,400	46,700	66,000	161,900	294,000
1975	106,000	96,000	90,000	226,000	518,000

1975 Pennsylvania colleges and universities will enroll a total of at least 518,000 full-time and part-time students. Thus, if present trends continue unchanged, Pennsylvania collegiate enrollments will increase by a minimum of 224,000 students, or an average of about 22,400 per year.

Enrollment Growth of Private and Public Institutions

The plans of private institutions for enrollment growth which were studied by one consultant to the Board indicate that the larger portion of the expected increase in enrollments will have to be accommodated in the public sector of higher education in Pennsylvania, as it has in other states. To carry out this responsibility, the Master Plan proposes a Commonwealth System of Higher Education to include three segments—Community Colleges, State Colleges, and Commonwealth Universities. Collectively, this system now has about 50 two-year and four-year campuses, well distributed geographically throughout the state. These campuses, supplemented by some new two-year campuses where communities develop plans for their creation, provide an extensive framework for rapid expansion of opportunities for higher education throughout the state. This Commonwealth System will be described in more detail later in the report.

The distribution of all full-time and part-time graduate and undergraduate enrollments among private institutions and the proposed Commonwealth System as they existed in the fall of 1965 and as they are expected in the fall of 1975 is summarized in Figure 1. Plans reported by private institutions indicate they hope to increase enrollments by at least 25% during the next decade. However, if the rate of growth revealed in the statistical projections based on the 1960-65 period and used in this report continues, private institutions will increase their enrollments by 41% by 1975. This statistical projection is the one used in this report. This means that the Commonwealth System will have to increase its share of the load from 45% in 1965 to 56% in 1975 to meet the present enrollment crisis. Clearly, if adequate opportunity is to be provided, a major public effort is essential.

Figure 2 shows that enrollments are expected to increase by:

1. 446% in the Community College Segment*
2. 106% in the State College Segment
3. 36% in the Commonwealth University Segment
4. 39% in the private institutions.

Thus, the task for all types of institutions is massive and the challenge great.

Graduate Student Enrollments

The fundamental importance of graduate education to Pennsylvania will be discussed in the chapter on programs. However, some perspective should be established on anticipated graduate enrollments included in the general enrollment projections above. In 1965, Pennsylvania institutions of higher education enrolled approximately 34,500 graduate students and 9,500 students seeking professional degrees in medicine, law and other professional schools. Total graduate enrollments approximated 44,000 students. One-third were full-time and two-thirds were part-time students. However, graduate education is often planned to combine part-time participation in research or teaching with formal classes in a total educational experience. Therefore, it is likely that a great number of the "part-time" graduate students are fully involved in graduate study. With a growing need for mature people to update their baccalaureate education, a continuing increase in part-time graduate study is anticipated.

Several factors influence the growth of graduate education. First, education, industry, and government are increasing their demand for people with graduate degrees. Second, an increasing proportion of baccalaureate degree graduates is seeking an opportunity for graduate study. Third, there will be an

* Includes all public two-year colleges and branch campuses.

increase of about 60% in the 20-29 year old age group during the period of 1965 to 1980, and they will begin to apply for admission to graduate schools in 1967. Finally, the rapid growth of knowledge is requiring more and more mature people with a baccalaureate education to seek more advanced education to remain competent in their fields.

On the basis of studies conducted for Pennsylvania's State Board of Education, for the U. S. Office of Education, and for the National Academy of Science, Pennsylvania should expect to at least double enrollments in doctoral programs and increase other graduate and professional enrollments by at least one and one-half times during the next decade. This would increase graduate and professional enrollments by approximately 60,000, to around 100,000 by 1975.

Updating Enrollment Estimates

It is the recommendation of this Master Plan that these enrollment projections be updated annually so that Pennsylvania has approximately a 10-year perspective in the enrollment growth it must accommodate. Beyond a 10-year span the accuracy of enrollment projects becomes increasingly doubtful. A 10-year span does provide reasonable lead time to plan and develop the resources necessary for growth, while maintaining programs of quality. Updating is crucial since the statistical trends on which this report is based may change. In fact, specific actions are proposed in this report which it is hoped will change present trends in college attendance rates in Pennsylvania.

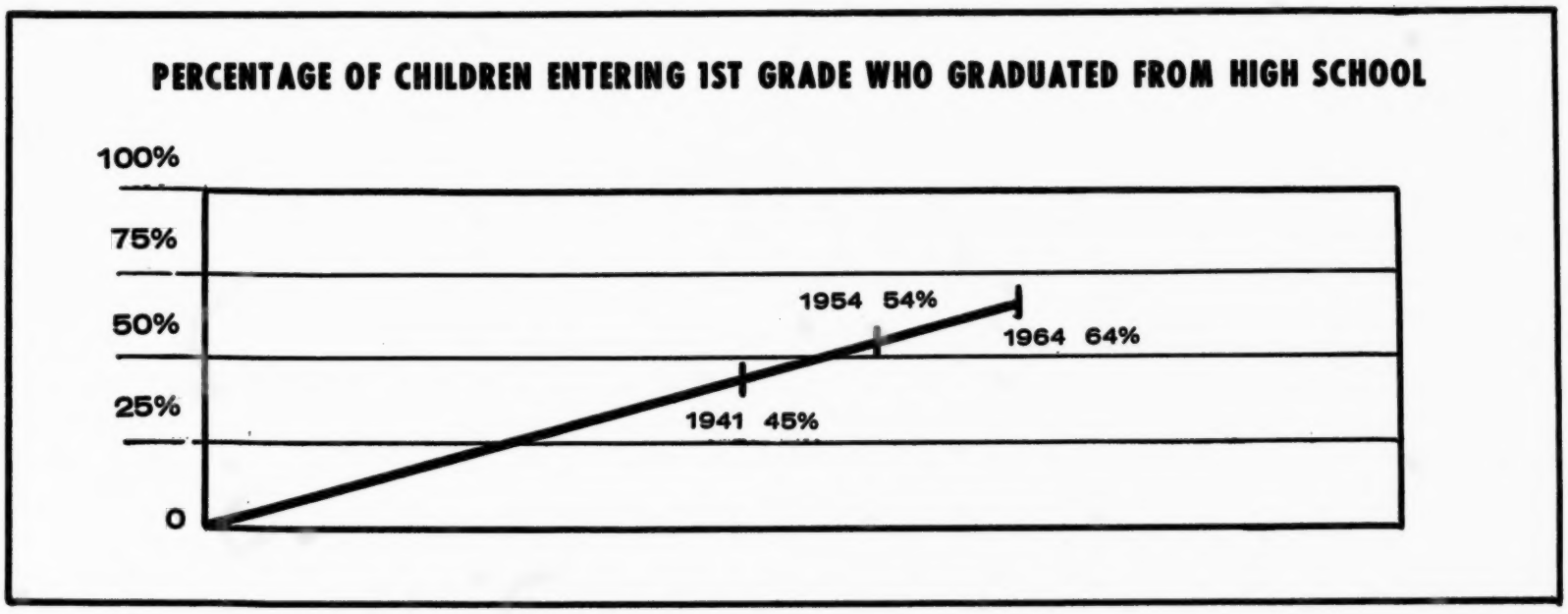
Factors Affecting Future Enrollments in Higher Education

Four basic factors, each of which may change over the years, affect planning for college enrollments. These include (1) the growth of the total population in Pennsylvania, (2) the percentage of young people in Pennsylvania earning a high school diploma, (3) the percentage of high school graduates in Pennsylvania going on to college, and (4) the percentage of students entering college who successfully complete their degree programs. Some examination of each is desirable.

Population Growth

The "population explosion" has become a matter of public concern both in the United States and throughout the world. It is common knowledge that the rising birth rate following World War II has been an important factor in the population growth in the United States. For Pennsylvania, during the 15-year period following the end of World War II, the number of live births was 50 to 75 thousand greater annually than in 1945. This is the group of young people who will be seeking higher education during the next 15 years. A gradual decline in birth rate has been observed in Pennsylvania, as well as throughout the nation, during the last few years. If that decline continues for several years, the accelerated rate of growth of higher education imperative during the next 10 years will begin to stabilize by 1975.

FIG. 3



Students Successfully Completing High School

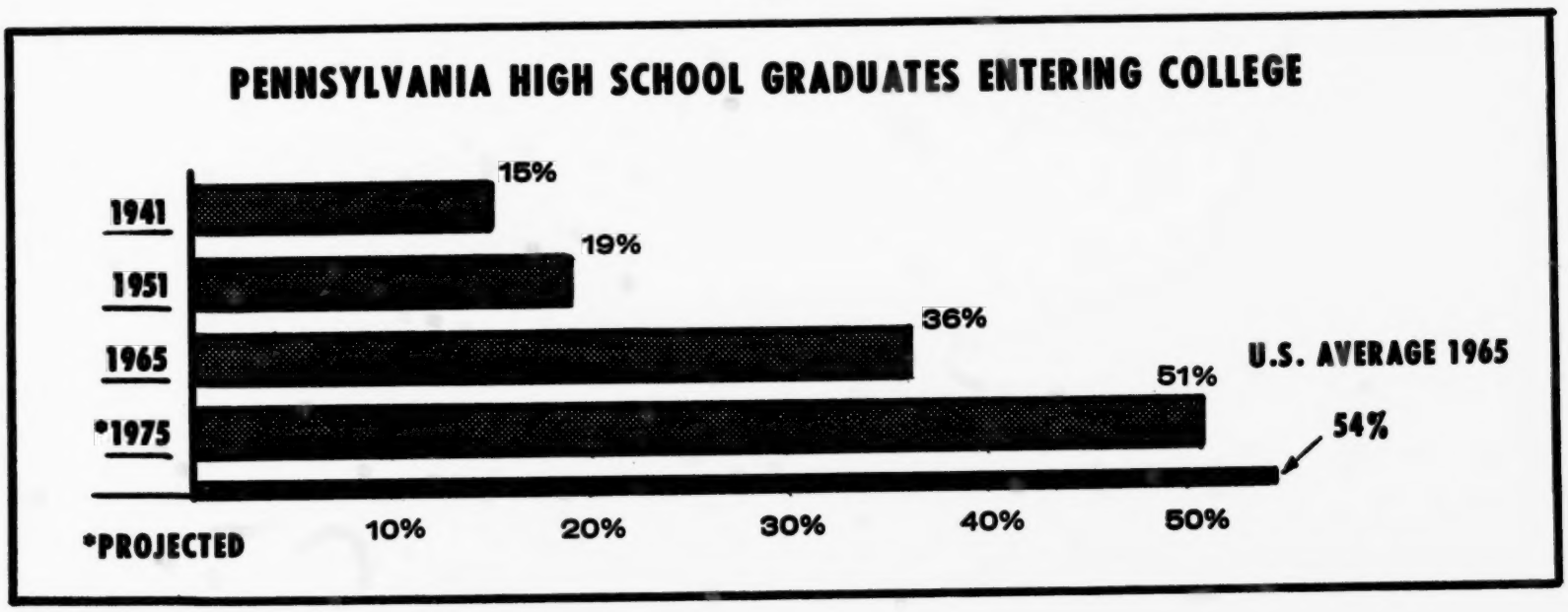
Figure 3 reveals that the holding power of the elementary and secondary school system in Pennsylvania has steadily increased over the last 25 years. Presently, approximately two out of every three Pennsylvania students who enter elementary school eventually complete high school. Public policy emphasizing completion of

high school, and increasing special attention for disadvantaged youth in whose ranks one finds many of the high school drop-outs, should produce a further increase, perhaps to 75% by 1975 and 80-85% by 1985. More high school graduates will require more higher education.

High School Graduates Who Go On To College

Pennsylvania lags seriously behind the nation in the proportion of its high school graduates who go on to college. As Figure 4 reveals, although Pennsylvania has almost tripled the percentage of its high school gradu-

FIG. 4



ates going on to college in the last 25 years, the national percentage in 1965 was still one and a half times the Pennsylvania rate. In 1965, only slightly more than one out of every three Pennsylvania high school graduates went on to college. Thus, Pennsylvania's present rate (36%) is seriously below the present national average (54%) and is still behind the national average of 1932 (39%). These comparisons may be somewhat misleading since the statistical bases on which such reports are based vary from state to state. However, the general story they tell is valid. Pennsylvania has a serious deficiency in higher education.

Opportunities for higher education should be available to all high school graduates. It is expected that the percentage of high school graduates who will seek such opportunities will increase during the next decade. Current statistical projections indicate that the percentage of high school graduates entering college may be expected to increase by 15%, to approximately 51% by 1975. Recent legislative actions, along with those proposed in this report, hopefully will change these trends and appreciably increase the proportion of high school graduates entering a collegiate institution. Thus, the statistical estimate of 51% may be considered the minimum to be expected.

College Entrants Who Graduate

Discussions of the percentage of students going on to college from high school can be misleading. The most important measure of the success of Pennsylvania's program of higher education is not its entrants but its educated graduates. Thus, it is important in Pennsylvania's planning to look not only at the percentage of high school graduates going on to college, but to look as well at the extent to which they successfully complete college. Enrollments, and therefore, costs, reflect both those who start and those who stay.

Adequate facts about this issue are not presently available. Each institution of higher education in Pennsylvania should be requested to arrange for a steady flow of data and research concerning factors related to the admission, academic performance, graduation, drop-out rate and related characteristics of its student population. The Superintendent of Public Instruction should regularly collect such information for the State Board of Education. Pennsylvania's efforts should be continuously evaluated and improved. Accurate base rates in present operations must be established against which to judge future accomplishment.

Recent national studies suggest that about 50 to 60% of the students admitted to four-year institutions graduate there, but the rates vary widely among different institutions. Graduation rates vary even more widely among junior and community colleges, and even less information is available about them. In the light of what is known, it would seem reasonable for Pennsylvania to expect each collegiate institution eventually to graduate at least 60% of the students it admits. This assumes that a significant portion of the remaining 40% will also complete a collegiate program after transferring to another institution. Experience indicates that perhaps 25% of the students will drop out and stay out for numerous reasons.

A related issue is the successful graduation of students who transfer from community colleges and branch campuses to complete baccalaureate degrees. A recent national study indicates that it might be reasonable to expect that at least 60 to 70% of such students should be able to complete their degree within two to four years after transfer. Those graduation rates will be significantly influenced by the extent to which effective articulation of the academic programs of two-year and four-year institutions can be accomplished.

Chapter III

RANGE OF PROGRAMS

It is the object of this Master Plan to insure that Pennsylvania (1) provides a wide variety of higher education programs to serve the diversity of talents and interests of the people of Pennsylvania and (2) meets the needs of the Commonwealth for educated people with a wide range of competencies. The range of programs this Plan proposes includes three types of associate degree programs, baccalaureate degree programs, graduate professional, post-graduate and research programs, leading to professional degrees as well as academic degrees, in addition to a variety of non-degree programs.

Types of Degree Programs

Associate Degrees

These are programs not of baccalaureate level, usually two academic years in length, designed to broaden a student's education or to help him acquire background of a semi-professional character. Successful completion is recognized by an associate degree. Such programs are offered in community colleges and on the campuses of various colleges and universities. They fall into three program categories:

1. Transfer. This program provides the first two years of a baccalaureate degree program. The emphasis is upon the basic elements of a collegiate education and an introduction to basic concepts and principles. It is assumed that the final two years will be completed in a baccalaureate institution.
2. General. This program provides a general education fitting the student's personal interests, rather than aiming for transfer later to a baccalaureate program. It emphasizes courses involving broad areas of knowledge accompanied occasionally by skill courses that are of personal interest rather than occupational significance.
3. Semi-professional. These programs prepare people for vocational-technical or semi-professional jobs. They give some emphasis to the knowledge base on which work depends, so that the graduate cannot only carry out the responsibility himself, but be prepared to supervise and train assistants in that field. Elements of liberal education are included to continue expanding the student's horizons.

Baccalaureate Degrees

These programs will continue to be the core of collegiate education. Their objectives emphasize developing competence, in depth, in some substantive field, plus a broad liberal education. Secondarily, some baccalaureate degree programs focus upon the development of particular professional skills such as in teaching, business, or engineering. Such programs usually take four academic years to complete.

Graduate and Professional Degrees

These post-baccalaureate programs focus primarily on developing an increased depth of understanding in a particular area of knowledge. In addition, professional programs, such as medicine, focus upon developing professional skills necessary to provide quality services in a particular profession. Such degrees characteristically take five to seven academic years beyond high school for the master's or first professional degrees and seven to ten years for the doctorate. Post-doctoral graduate programs focus on helping a person develop a highly specialized, often extremely difficult competence in some special area of knowledge or in some professional skill, such as heart surgery.

The Special Role of Graduate Education and Research

Earlier in this report, it was said that graduate enrollments would more than double during the next decade. The reasons for the rapid expansion of this level of education need to be examined, as does its fundamental importance to the whole higher education enterprise, the economy of the state, and the solution of social problems.

It is not possible to consider graduate education without considering research, since these are one integral program in universities. This is true because graduate education has two objectives. First, to educate experts in the various fields of knowledge and in the professions. Second, to educate people in the attitudes and skills essential to discovering new knowledge, since economic progress and solutions to social

problems depend not only upon effective use of what is known, but also upon discoveries of things yet unknown.

These highly educated people then become the teachers of generations which follow and provide the leadership for the continued expansion of knowledge and the translation of the new knowledge to useful human application. Each of the functions of the graduate education-research program needs to be understood.

The Need for Teachers

This Master Plan projects an increase of 224,000 college students during the next decade, raising the total number of college students in Pennsylvania to 518,000. But who will teach them? For most aspects of college teaching, faculty should have advanced graduate or professional degrees. According to a recent study by the Department of Public Instruction, slightly more than half of the faculty in Pennsylvania institutions of higher education possess the doctorate. Most of the rest hold the master's degree of its equivalent. This proportion of doctorates to master's degrees is minimal to provide quality higher education and needs to be increased substantially.

How many college teachers will be needed in the future? Many factors influence such estimates, as indicated in a recent National Education Association study of teacher supply and demand in universities, colleges, and junior colleges. Two generalizations are fundamental in planning for college faculty. First, the more complicated and intense the level of instruction (e.g. medical education), the fewer students a faculty member can handle at any one time. Therefore, the student-to-faculty ratio will be highest in freshman and sophomore classes and decline with progressively more advanced study, being lowest at the doctoral level. Second, the nature of the program of study makes a difference. For example, laboratory courses can handle fewer students at one time than can many non-laboratory courses.

The student-faculty ratios range from 6 to 1 to almost 20 to 1 from campus to campus across the country, depending upon the nature of the programs involved. The national average is about 14 to 1. Using this average, with 224,000 additional students anticipated, Pennsylvania will need approximately 16,000 new college faculty members with advanced degrees during the next decade. Moreover, because of retirement, death, and other factors, Pennsylvania will have to replace about six % of its faculty each year, or a total of approximately 11,000 new college faculty replacements. Thus, Pennsylvania will need more than 27,000 new college faculty during the next decade to add to the 17,850 full-time and part-time faculty who were teaching in 1963-64. Without these teachers, the remainder of the Master Plan cannot be implemented. Thus, graduate work is essential simply to maintain the system of higher education itself. On top of this is the increasing demand by elementary and secondary school teachers for graduate education to increase the quality of instruction in public schools.

Leadership for Pennsylvania's Economic and Social Development

Another reason for increased graduate enrollments lies in the nature of our economy and our evolving society and its needs. It is generally recognized that our technological-scientific competence, our industrial development, our agricultural productivity, our guidance of social change, our ability to maintain a reasonably steady rate of economic growth, our success in solving pressing problems of transportation, housing, and the like, and our military safety depend in significant measure upon a solid nucleus of highly trained men and women, most of whom are products of graduate schools. New industry, new products and devices, new methods of applications and new technologies emerge from the creative and imaginative insights of these higlhy educated people. Such developments undergird the economic progress of Pennsylvania. There is a direct relationship between the scope and quality of the state's program of graduate education and research and its economic welfare.

Presently, our country supports research and development expenditures in the amount of $24 billion annually, three-fourths of which is spent by private industry. These funds are used in states which have highly educated individuals engaged in basic research, development and design. These are the people who propose and get scientific and technology research projects. And it is from these projects that new industries arise. A recent National Science Foundation survey disclosed that California, New York and New Jersey led the other states in the number of top level scientists working there. Moreover, the work of such scientists requires the work of others. For example, it has been estimated that for every Ph.D. in science and technology, five to ten engineers are employed in concert with him, and for each engineer, 15 skilled workers. Thus, the work of one may produce employment for a hundred.

The ability to attract, develop and keep science-oriented industry depends upon the presence of high quality graduate education-research programs in uni-

versities. The report of the Pennsylvania Governor's Council of Science and Technology issued in September 1965, documents this assertion. Several valuable proposals concerning graduate education and research were made in that report. Support for some of those proposals will be found in this Master Plan. There is no easy and direct way to estimate the number of people with a graduate education that Pennsylvania needs. However, data are available showing that approximately half the people who earn a doctorate enter work other than teaching.

In universities, graduate education stimulates creative research and creative research produces high quality graduate education. In higher education, each would be meaningless without the other. Creating a climate in which research develops is a delicate task. It requires outstanding scholars and a climate of freedom and flexibility that enables a scholar to pursue whatever hypotheses appear promising. The university provides the essential climate and resources for the interplay of graduate education and basic research. The majority of basic research going on in the United States is being conducted in universities, although a great deal of developmental or applied research is being done in many other settings. While the ultimate social value of basic research is not immediately apparent, scientific history is full of examples of the eventual major social economic importance of fundamental scientific research.

Research conducted in the setting of the baccalaureate college, or even in the community college, will necessarily be of much more limited scope. However, where faculty in such institutions in Pennsylvania have strong research interests, cooperative efforts should be developed with the major universities so that resources may be available to help such faculty develop their research and scholarly activity. In this way, Pennsylvania may be able to retain able teachers and scholars in its community colleges and baccalaureate colleges.

Non-degree Programs

One group of post-high school programs, which does not lead to a college degree, should be mentioned. These are vocational-technical skill centered programs, up to two years in length. The importance and value of these post-high school programs have been underestimated for too long in Pennsylvania. There is a growing tendency throughout the country for parents and students alike to glorify a collegiate degree and to consider vocational technical education as something less worthwhile. This attitude interferes with the development of such occupational programs. The effective operation of our increasingly complex society requires a large number of highly skilled technicians. Job opportunities for such people continue to grow. Without skilled technicians, the ideas of scientists, theorists, or engineers cannot be converted into practical utility.

It is expected that occupational programs will be provided by area vocational-technical schools, community colleges, technical institutes, and in continuing education programs. Where such instruction is provided at a community college, it should be given a clear organizational identity so that the unique contribution to be made by high quality vocational-technical education will not be dominated by or confused with academic degree-oriented programs.

The Content of Instructional Programs

The need for a diversity of educational programs has been emphasized. Pennsylvania will need many teachers, engineers, doctors, psychologists, agricultural specialists, chemists, and so on. But how many of each kind? And how many Pennsylvania citizens will want to study in each field? It is tempting to believe one might study the needs of Pennsylvania for people in each field, determine how many are needed, and plan to educate that many. But the problem is far more complicated than that.

Take the preparation of elementary and secondary teachers, for example. According to a recent report from the Department of Public Instruction, Pennsylvania's share of the school-age population for 1964 was 5.7% but Pennsylvania provided 8.4% of all persons prepared for elementary or secondary teaching in the United States. Pennsylvania is clearly carrying its share of the load in this field of instruction. However, of those prepared for secondary teaching in 1965, only 48.6% are reported as teaching in Pennsylvania, the lowest percentage in the past 11-year period. If Pennsylvania needs more elementary and secondary teachers, perhaps the solution is not to expand rapidly undergraduate teacher preparation programs, but to try to improve salaries, working conditions, support for advanced study, or whatever other factors are relevant in keeping graduates in Pennsylvania.

The complexities involved in trying to predict the volume needed in hundreds of fields of study are extensive. There are the personal factors of what people want to study, as well as social, economic, and cultural factors that influence plans. It would take a massive research effort spanning several years even to begin to understand the interplay of all these factors on each field of study. Even then, conclusive results are not assured, and Pennsylvania can't wait for such an analysis.

Fortunately, there is a reasonable alternative. The faculty in each field of study know the trends and impending developments in their field, and the development of instructional programs by colleges and universities is usually a coordinated expression of the needs in various fields and of the likelihood that students will choose to pursue such studies. Therefore, it is recommended that the Council of Higher Education rely upon the institutions collectively to develop plans for the relative emphasis to be given various fields of study. The Council of Higher Education can examine these collective plans, and where gaps or overlaps seem to exist, take appropriate steps to rectify the situation. In addition, continuing appraisal by various agencies of manpower needs in the state should be encouraged so that educational planning can be related to these objective appraisals.

Continuing Education and Community Service

The programs previously described are formally designed. They are provided in an institutional setting and within a given framework. There is, however, a growing need for educational services above and beyond formal education.

Informal and Short-term Programs of Study

There is an increasing need for adults to update their education to keep up with current developments. Continuing education is essential if we are to make rapid, effective use of new knowledge. Thus, one of the major and growing responsibilities of higher education is to provide seminars and short periods of instruction on new developments in a variety of fields. In addition, training or retraining programs to upgrade or develop new skills for productive personnel who are being dislocated by technological and social changes are increasingly needed. Similarly, to contribute to the enrichment of their personal lives, many adults want continuing education.

Community Service

A second rapidly exanding responsibility of higher education is in the area of community service. A fundamental premise of many new federal laws (presently at least 25), and some state laws, is that rapid translation of new knowledge into effective use in business, industry, government and the solution of community and social problems is necessary for economic and social growth. The prototype often used as an illustration is the success of the agricultural and home economics extension programs invented decades ago. There is a growing movement to extend the principle of partnership between colleges and universities and communities, social agencies, state government, or business and industry to solve problems. Such programs often involve the provision of consulting and training services to community groups concerned with housing, poverty, government, recreation, employment, youth opportunities, economic development, transportation, health, and the effective use of natural resources.

First Steps Toward a Coordinated Effort in Continuing Education

Unfortunately, there is no accurate or relatively complete summary of current continuing education and community service activities on the part of colleges and universities in Pennsylvania. It seems clear that if some of the resources of higher education are to be used for this purpose, some coordination of effort is desirable. However, before reasonable steps can be taken, basic data about what is now being done must be developed. Therefore, it is proposed that the State Board of Education establish a task force on continuing education to conduct a state-wide analysis of current continuing education and community service activities on the part of colleges and universities, to study the total resources presently available in Pennsylvania for such education efforts, and to analyze the different kinds of programs needed. The task force should make recommendations concerning the kinds of continuing education and community service programs that should be developed in the Commonwealth System of Higher Education, the mechanisms for coordinating this effort among the institutions of the state, and approaches to combining federal, state, and local funds to be devoted to these objectives.

These, then, are the major educational programs which this Master Plan seeks to encompass: (1) formal instructional programs of considerable diversity in kind and level leading to a variety of academic degrees; (2) graduate education and research to find answers to questions unanswered at the present time, and to educate students in the attitudes, habits, and skills of scholarly productivity; (3) programs of continuing education and community service to make knowledge widely available throughout the state and to contribute to the rapid translation of what we know into useful human applications in every sector of Pennsylvania life.

Flexibility for the Student

The types of programs described are not mutually exclusive and it is important to recognize that certain kinds of flexibility and articulation should be sought among them.

Interrelationships Among Programs

The objective is to admit each high school graduate wishing to continue his education to a program in which he has an interest and a reasonable chance to succeed. However, as students progress, some will change and they will want to qualify to move from one program to another. Therefore, this Plan forsees a two-factor approach to the selection of an appropriate program for each student.

1. At the student's request, he should be admitted to a program for which his present abilities and level of performance qualify him. This means he may have to accept initially an alternate to his first choice, if his qualifications are presently inadequate.
2. After being admitted to a program, the student's performance should determine his progress through that program or the opportunity to transfer to a different program. The point of initial admission should not restrict the kinds of programs through which a student may eventually progress. Only the caliber of his performance and the character of his academic background should determine that.

Interrelationships Among Institutions

Some program transfers will be possible within an institution and some may require moving from one institution to another. Clearly, some articulation of programs among institutions is desirable. Coordination of the programs of two-year academic institutions with those of four-year institutions is particularly important at present. Therefore, it is recommended that the State Board of Education appoint a committee composed of representatives of two-year and four-year institutions to propose policies and procedures for coordinating the programs among the institutions in the Commonwealth System of Higher Education and for assuring that graduates from transfer programs in two-year institutions may have an opportunity to complete their baccalaureate degree in a four-year institution.

In summary, the objective is to achieve a degree of articulation among different types of educational programs and among different types of institutions so that the student's transition through these programs is most effective, so that a reasonable degree of flexibility for the student's development is maintained, and so that quality is assured.

Chapter IV

A COMMONWEALTH SYSTEM OF HIGHER EDUCATION AND ITS ALLOCATION OF RESPONSIBILITY

In the introduction to this report, the historical trends toward the development of a public tradition of higher education in Pennsylvania were reviewed. Pennsylvania has arrived at the point where it should establish a clear-cut program of public higher education while encouraging the continuation of the long standing and valuable tradition of private higher education. It is the purpose of this section of the report to delineate an institutional framework for a public tradition. The government of Pennsylvania has many public responsibilities—insuring that adequate opportunities for post high school and higher education exist is only one of them. Therefore, it is clear that the Commonwealth will be able to invest only a portion of its wealth to develop such programs.

There are 145* institutions of higher education in Pennsylvania and only a few of these have had a clear and long-standing tradition and legally defined responsibility for a public role in higher education. For the Commonwealth to make a significant contribution to a rational development of higher education in Pennsylvania, it is proposed that its financial commitments be limited substantially to a Commonwealth System of Higher Education composed of those institutions which are legally and organizationally committed to the public service and which are subject to some general public control.

Characteristics of Institutions in the Commonwealth System of Higher Education

In line with the rationale just presented, it becomes essential to establish criteria by which to identify institutions committed to the public tradition, and to provide guidelines which the State Board of Education may follow if circumstances require additional institutions in the System.

The characteristics of institutions which become a part of the Commonwealth System of Higher Education should be as follows:

1. They are governed by a lay board, at least one-third of whose members are appointed by the Governor, and whose policies are subject to guidance by the State Board of Education. Publicly-appointed trustees comprise at least one-third of an institution's Executive Committee.
2. They are committed to providing educational opportunities primarily for Pennsylvania residents at a minimum of seventy % of the undergraduate enrollment.
3. They are committed, through research and otherwise, to assisting in the resolution of social and economic problems in the Commonwealth.
4. They are tied into a state-determined fee structure which provides education at low-cost to Pennsylvania students and which provides that non-Pennsylvania students contribute at least twice as much as Pennsylvania students toward the cost of their education. (A study of reciprocity with other states should be made.)
5. The institution's financial operations are subject to public audit to insure that appropriations are expended for the purposes for which they are allocated.
6. The institution serves the general purposes of a university, college or community college rather than the limited purpose of a single professional, or vocational, program.
7. The Commonwealth of Pennsylvania assumes a legal and financial responsibility for insuring that the institution has sufficient funds to carry out its program, with some portion of the institution's total budget to be derived from sources other than legislative appropriations, such as student fees, local taxes, federal grants and private contributions.

Institutions included in the Commonwealth System initially will be asked to revise themselves, if necessary, to meet these criteria. The Master Plan proposes that institutions that may need to be added to any one of the segments in the future be required

* See Appendix I for list of degree-granting institutions as of July 14, 1966.

to meet minimum qualifications listed above and that additions to the System be considered only on the initiative of the State Board of Education, in line with its coordinating function for higher education in the Commonwealth. The ingredients now exist in Pennsylvania for a comprehensive system of public higher education. This Master Plan envisions the coordinated development of the three segments of the system: (1) a Community College segment, (2) a State College segment, and (3) a Commonwealth University segment.

The Community College Segment

Community Colleges are two-year institutions with two general characteristics.

1. They provide a comprehensive educational program encompassing not only approximately two years of a baccalaureate program, but also occupationally-oriented and general education programs, vocational-technical education, where appropriate, and continuing adult education for the community.
2. Representatives of the community being served participate in the governance of the institution to coordinate its effort with local needs, and the community being served participates in financing both operational and capital budgets.

The development of such institutions received its first major impetus in Pennsylvania when, in 1955, the Governor's Commission on Higher Education recommended that Pennsylvania develop a system of community colleges. Every advisory group concerned with higher education appointed by subsequent Governors has supported this recommendation.

In 1957, the first bill to authorize development of a system of community colleges was introduced into the Pennsylvania General Assembly. Similar bills were introduced in 1959 and 1961. Finally, in 1963, the Legislature enacted legislation initiating a system of community colleges. The Council of Higher Education of the State Board of Education has as one of its responsibilities the development of such a system.

Since 1963, ten community colleges have been authorized by the Board of Education, upon recommendation of the Council of Higher Education, and most of these are presently in operation.

Pennsylvania has another type of two-year institution, the branch campus, with its roots in the depression of the 1930's. During that very difficult period, certain communities turned to colleges and universities to provide programs of undergraduate instruction in daytime classes in their communities. Several such units were established during the depression years. During the two decades following World War II, as pressure for higher education continued to increase, additional units were established. Presently, there are over 30 such campuses and centers in operation, providing transfer programs, occupationally-oriented associate degree programs, or both.

With the advent of the community college system, a conflict with the branch campus developed, since the programs offered often overlapped. To provide both in the same city or area does not provide diversity of program, but, often, duplicates services. Furthermore, the method of control and the financial responsibility are different, encouraging unnecessary competition at Commonwealth expense.

The Master Plan recommends the following:

1. The programmatic, organizational and financial pattern of the community college be followed in the expansion of two-year educational opportunities.
2. No new branch campuses be approved.
3. Existing branch campuses be combined with, or converted into, community colleges, wherever possible. (In speaking of branch campuses and their gradual elimination in favor of community colleges, the new campus of the Pennsylvania State University at Olmsted Air Force Base was not conceived of as falling within the category of branch campuses, but as a development which has positive values in its own right.)

It is recognized, since branch campuses vary so widely in size, facilities, and program, and may have commitments that cannot be terminated arbitrarily, that no firm date can be set for their individual conversion. It may even be desirable for one or more to be combined with other institutions in the Commonwealth System or to become units in the State College segment. This, however, in no way alters the fundamental recommendation that the community college pattern prevail and that appropriate steps be taken to accomplish this purpose at the earliest possible time.

The advantages of this resolution of the problem are as follows:

1. A state-wide plan for provision of two-year higher education can be implemented on a uniform basis and at a minimum expense.
2. Educational opportunities provided in each community will be based on community need, under community management, and yet provide instruction similar to that given elsewhere.

The Master Plan recommends that the Council of Higher Education proceed in the encouragement of the establishment of community colleges, widely -

distributed throughout the state, with somewhere between 20 and 30 ultimately being established.

It is proposed that the Community College segment of the Commonwealth System be concerned with two-year transfer programs, two-year programs of general education and two-year pre-professional and semi-professional programs including vocational-technical education and such continuing education programs as can be coordinated with the offerings of other institutions in the system.

The State College Segment

Pennsylvania has 14 primarily baccalaureate level institutions geographically dispersed around the state. Thirteen carry the title of State College and one the title of State University. Presently, they are all essentially four-year institutions, with great potential for growth. It has been only in recent years that the effort began to transform them from teachers colleges to institutions with strong baccalaureate programs in the general arts and sciences. In addition, most have begun to develop master's level programs, primarily to serve the needs for such instruction on the part of public school personnel. It is widely agreed that this group of institutions has possibility for rapid and large scale expansion of baccalaureate instruction. It has also become widely acknowledged that their current organizational pattern is not the best to encourage effective planning and management of the rapid expansion of programs and enrollments and the broad scale improvement in quality that is desired. This problem will be considered later.

In allocation of functions, these colleges are extremely important in terms of undergraduate programs. They must provide a sizeable portion of the increased baccalaureate level instruction that will be required during the next ten years. In addition, many of them will need to develop further strong graduate programs at the master's level, where faculties and facilities are adequate and with the approval of the Council of Higher Education. A decade hence, some may have developed sufficient strength to be considered for doctoral level programs if and as needed.

The Commonwealth University Segment

One of the major contributions of American higher education has been the development of the large university. This model has been so successful that it is now being emulated by most of the other nations of the world. Pennsylvania has three such universities in the proposed Commonwealth System of Higher Education—The Pennsylvania State University, Temple University, and the University of Pittsburgh.

Collectively, the three institutions educate large numbers of students at all collegiate levels. Their programs are of recognized quality and represent a standard to be followed in the Commonwealth System. It is expected that all three institutions will continue to fulfill their role in providing a full range of educational opportunity to large numbers of students. Because of the rapid growth proposed for two-year campuses in Pennsylvania, institutions in the Commonwealth University segment should plan to have a higher percentage of upper division students than has been true in the past, since they also, along with the State Colleges, will have to provide the final two years of baccalaureate instruction to many of the graduates of transfer programs in two-year institutions. However, it is expected that the Commonwealth Universities will continue to enroll large numbers of students at the freshman and sophomore levels.

Graduate Education—Research

As described earlier, graduate education and research are an integral program in universities. Both must be present to prepare people with advanced degrees to become college teachers, and to provide the professional personnel and scholars necessary for Pennsylvania's economic and social development.

The three universities included in the Commonwealth System of Higher Education collectively granted over half the doctorates in Pennsylvania in the last decade. They also granted over one-third of other graduate degrees. Including the master's degrees now awarded by the State Colleges, the proposed Commonwealth System is now awarding slightly less than half of all graduate degrees in Pennsylvania. While graduate education in private institutions may increase somewhat during the next decade, planning throughout the United States has recognized that public higher education will have to assume an increasing share of the responsibility for graduate education.

The fact is that the state's financial support of graduate education and research is really an investment which brings in large sums of money from outside the state. For example, the three universities included in the Commonwealth System together spend about $50 million a year on research, which in turn provides a major foundation for graduate study. Approximately 70% of this $50 million comes from the federal government. Other funds come from the state, industry and philanthropy. Thus, by using some state funds to build up graduate programs through which high quality research is accomplished, a competence is developed which can be used to attract large amounts of research funds from other sources. Obvi-

ously, $50 million a year is a significant boost to Pennsylvania's economy. Moreover, major graduate education and research programs of this kind attract business and industry to settle nearby so they can attract staff from among the graduates of the major universities, and so they can be near the sources of newly developing knowledge which can be used to expand or improve industry.

Clearly, with the three universities proposed in the Commonwealth System, Pennsylvania has available (1) a solid foundation of graduate education already functioning, (2) institutional expertise to develop new top quality graduate programs when necessary, and (3) resources for ready expansion of graduate education to serve the growing needs of the Commonwealth. The major proportion of the proposed graduate enrollment expansion at the doctoral level will have to occur in the Commonwealth universities, although the Commonwealth must also continue to place reliance upon the independent institutions. The State College segment will share with the universities the responsibility for the expansion necessary for the master's degree.

Chapter V

FINANCING OF THE COMMONWEALTH SYSTEM OF HIGHER EDUCATION

Up to this point this document has been concerned with indicating the types of students for which opportunities must be provided, the types of programs needed to satisfy their needs, and the presentation of a Commonwealth System of Higher Education which, with its various levels of education, may serve to guarantee opportunity at low cost for higher education on all levels, in various forms, and in different geographical locations.

The higher the level of formal education the more expensive it is. It is therefore incumbent upon the Commonwealth to seek means whereby its investment in higher education may produce the desired results with reasonable economy. Major support should therefore be concentrated upon those institutions which are agencies or instrumentalities of the Commonwealth. Even here, however, sound public policy dictates that appropriations should be based, not upon the popularity of particular causes or upon institutional influence, but rather upon an equitable distribution which accomplishes the Commonwealth's major objective of providing varied educational opportunity at low cost. Tuition for higher education, no matter how small, may serve as a barrier to enrollment for some students. Consideration should be given to gradual tuition reductions at institutions in the Commonwealth System, perhaps eventually to the point of free tuition, at least for Pennsylvania students of low income.

Of the three segments in the Comonwealth System, that of the community colleges is the one where the principle of shared fiscal responsibility has been developed most clearly. Costs here are equally divided among the state, the community and the student for operating expenses and between the state and the community for capital expenses. Whether or not future experience reveals this to be the best method of financing remains to be seen, but a systematic approach to financing has at least been put into operation. However, this particular system can not be applied to the other two segments of the Commonwealth System. What follows concerns the development of a formula which can provide rationale for appropriations to institutions within these two segments.

It is unnecessary to describe procedures by which appropriations to these institutions have been made in the past. Suffice it to say these procedures have not been generally satisfactory to all parties. With major expansion of higher education immediately ahead involving greatly increased Commonwealth obligations, a rationale for support is imperative.

A formula approach to the problem is recommended. Such an approach will provide state officials with a guide for the equitable distribution of funds among institutions; it is a reasonably trustworthy means for determining the magnitude of the total of state support for higher education which should be appropriated for a given year, and it can serve as an instrument for both fiscal and policy review and planning over a relatively extended period of years.

Formula for Operating Expenses

There are certain prerequisites for the development of an effective formula for use in determining a proper evaluation of budget requests. They are:

1. There must be sufficient uniformity in accounting procedures among institutions to enable state agencies to review data on a comparable basis.
2. Consideration must be given not only to enrollments, but also to costs of instruction differentiated among undergraduate, graduate and professional levels, conditions for favorable competition for faculty and research talents, requirements for effective supporting services, and the necessity for adaptation to new technologies and to new social needs.
3. Increments in cost of plant maintenance must be recognized but support of capital construction should not be included.
4. Items such as auxiliary services, contract research, state funds for matching federal allocations, or other grants of a contractual nature should not be included.

5. Adjustments to correct imbalances and inequities should be included.
6. To protect the Commonwealth against excesses occasioned by institutional forecasts and estimates of expenditures, the Council of Higher Education should be so staffed that it can effectively perform its function of budget and expenditure review.

The factors of the formula being proposed are of three kinds: (a) those which measure annual changes in costs due to changes in the annual enrollment; (b) those which measure annual changes in costs due to changes in the price index; and (c) those which measure annual changes in costs due to changes in academic programs (improvements, additions, deletions).

The following factors are suggested as comprehensive and sufficiently delineated to provide a basis for computing needed appropriations:

1. The enrollment factor. This can be based either on credit-hours or equivalent full-time students in various programs on various levels of instruction, enabling cost differentials to be reflected for undergraduate, graduate, professional and other categories. This should be further refined in terms of Pennsylvania or out-of-state residents.
2. Per-student cost factor. The figure which should be used here is the net cost figure, meaning the difference between the actual cost of instruction per student and the amount received per student in the form of tuition income, refined in terms of type and level of program.
3. Faculty salary increase factor. This is based on the assumption that for the foreseeable future all institutions of higher learning will be faced with the necessity of increasing salaries in order to meet competitive demands. The principle involved is to provide for a "keep-up" situation relative to other institutions and a "catch-up" situation for those institutions in a given segment which are below the average of their group.
4. Faculty augmentation factor. Additional faculty members are needed as enrollment increases and also as new program responsibilities are assumed. Something on the order of one faculty member at average salary per 15 additional undergraduate or eight additional graduate students might be a useful starting ratio for experimental application of the formula.
5. Supporting-services augmentation factor. As the enrollment increases and the faculty expands, supporting services, administrative, secretarial, janitorial, etc., expand even more rapidly, on a ratio of at least 2 to 1.
6. Library support factor. Library costs rise to some extent with enrollment but even more so with level and type of program. This factor should not be based upon enrollment increases but upon recognized national standards for collegiate and university libraries.
7. Departmental research factor. No consideration can be given in a formula for contract research, but there is another type of research which is equally important, if not more so. This is unsubsidized, critically important research interwoven with the student-teacher learning process. This factor might well be treated as the equivalent of 3% of the educational expenses of the institution for each year.
8. Plant maintenance factor. These costs will vary from institution to institution based on type and age of structure, labor conditions, campus arrangement, etc. Experience indicates a normal cost increase of around 5% per year. To this should be added a sum to cover the maintenance costs of new buildings.
9. Continuing education and community service factor. This area of educational program is of increasing importance and patterns of shared financial responsibility between state and federal government are developing. Implementation of this factor should facilitate full use of federal funds.

This formula provides a bare outline of the factors which are the essential ingredients in institutional cost which vary from year to year. It is based on the current annual budget and is designed to pin-point those factors which may require increased appropriations for the ensuing year. In view of the necessity of securing a relatively uniform accounting procedure before such a formula can be formally applied, it is recommended that these factors be used experimentally for a period of two years to determine if a sound formula can be based on them. Eventually, a formula should be worked out by the Council of Higher Education in conjunction with university and college officials. One further point should be kept in mind: a formula such as this can be applied only when institutions are of a similar type. Therefore, one formula can be usefully employed for the Comonwealth University segment and a variation can be employed in the State College segment. A version of this particular formula has already been discussed among institutions in the Commonwealth University segment, along with others, and there is every indication that if experimentally applied for a period of two years its ultimate form could serve a significant purpose. In fact, the only way to bring order into the determination of appropriations is through a formula approach. This is sound policy; it is also good administrative policy.

The State Board of Education should adopt the formula approach as a basis for reviewing institutional budgetary requests, using one formula for the Commonwealth University segment of the System and a similar one for the State College segment.

Formula for Capital Improvements

The ability of the Commonwealth to meet its responsibilities for the education of a much larger number of students seeking entrance to college is dependent to a large extent on the facilities which are available. These must be carefully planned, designed and constructed. The situation demands extraordinary effort to enable institutions to move ahead immediately with construction so that space for instruction is ready as enrollment increases.

The very size of this responsibility argues for care and discrimination in the allocation of funds. Happily, there is already available an adaptable formula for determining institutional capital needs. This was developed by the Commission on Academic Facilities in administering the Higher Educational Facilities program of the federal government and has had two years of experience behind it. Its heavy emphasis has been on increased enrollment and on occupancy rates of facilities. One factor which is not present in this particular formula has to do with obsolescence, one which must be considered in Commonwealth planning.

The State Board of Education should adapt the formula used for determining capital needs currently being used by the Commission on Academic Facilities and apply it in the evaluation of capital needs for institutions within the Commonwealth System of Higher Education.

With the application of these two formulas, much of the insecurity and confusion surrounding appropriations for operating expenses and for capital improvements can be eliminated, providing known rationale to all parties. Vying for special privilege among institutions and fiscal and legislative uncertainty as to the validity of claims can both be eliminated, after such a system has taken hold.

Federal Funds for College Buildings

A variety of federal agencies such as the U. S. Office of Education, Department of Health, Education and Welfare, National Science Foundation, and the National Aeronautics and Space Administration have funds which can be used for constructing college buildings. Pennsylvania should make it possible for institutions in its Commonwealth System to seek funds wherever available because they can provide an important supplement to the resources the Commonwealth can provide. In general, Pennsylvania is well organized for this purpose. However, an increased degree of flexibility is needed in the General State Authority to facilitate committing matching funds for college buildings. This is particularly important for the development of programs of graduate and professional education and research.

Occasionally, commitment of matching funds before legislative action is possible is necessary to secure federal funds. It is recommended that a relatively small fund for this purpose be established in the General State Authority under legislative supervision.

There is one other important consideration which calls for relief. It is in the Commonwealth University segment where the institutions have been on the non-preferred list in budgetary considerations. Locked in as these institutions now are to a Commonwealth-determined tuition structure, they need to know in advance what their appropriations are to be in order to avoid over-commitment. Placing them in the preferred category along with the State Colleges and the state's share for support of community colleges would largely resolve this problem.

The State Board of Education recommends that the universities included in the Commonwealth System of Higher Education be placed in the preferred category in the Commonwealth's annual budget.

Chapter VI

GOVERNANCE OF THE COMMONWEALTH SYSTEM OF HIGHER EDUCATION

The State Board of Education proposes a Commonwealth System of Higher Education which includes institutions in three categories with major responsibilities defined for each segment. Major expansion will be necessary for institutions in each of the segments and additional institutions may need to be added in any one, or in all. The very rapidity with which expansion must be provided demands a systematic allocation of authority on the level of the individual institution, in terms of the segments of the System, and in terms of state-wide coordination.

There have been proposals for reorganization of the State Board of Education, the most common of which has been divorcing the Council of Higher Education from the Board and engaging a chancellor or other appropriate officer with staff to manage higher education in the Commonwealth. It must be remembered that the present State Board of Education was brought into being through legislative action in 1963 to provide a unified approach to all of the Commonwealth's educational problems. Adequate time has not transpired to permit final judgment on its value and requested funds for staff have not been made available. Furthermore, during much of this period, the Department of Public Instruction was without a permanent Superintendent and, therefore, internal reorganization has been delayed. Happily, this process is now well under way. It is proposed at this point that time be permitted to make the system more effective and that, in 1969, thorough analysis be made of its effectiveness and basic change, if desirable, be recommended at that time.

Critics and defenders seem to agree on certain essentials: (1) serious attention must be given to higher education; (2) coordination within segments and among segments in the Commonwealth System must be achieved; (3) allocation of responsibility and funds must be based on educational needs and administered through a formula system; (4) long-range planning must become a permanent Commonwealth activity; and (5) policy-making itself must be allocated and coordinated in an effective manner. The Board has kept these factors uppermost in mind and has in fact designed The Master Plan to effect improvement in them.

There are, in general, two possible systems for the operation of public higher education. One is a highly centralized system with power of origination and determination at the state level and with powers delegated to other instrumentalities and institutions by a central body. This is what would exist were there a separate Board of Regents (or similar title) and a chancellor (or other title) responsible for all higher education under the sponsorship of the Commonwealth. The other system, the one being proposed, places greater responsibility for the origination of proposals in the hands of institutions and segments of the system but places the responsibility for coordination and allocation in a central authority, the Council of Higher Education. This system relies more on the initiative of the institution and the segment to determine educational need. It avoids the obvious possibility of unnecessary straight-jackets and is designed to avoid duplication and to effect coordination, thereby providing the most important educational services in the most efficient manner possible.

The Community College Segment

The newest segment in the Commonwealth System of Higher Education consists of ten institutions. One of the Board's consultants has recommended that a total of 26 such institutions should be in operation within the next few years, with a projected full-time and part-time enrollment of 106,000 students by 1975. This is a phenomenal rate of growth, but the need for higher educational facilities is so urgent that this projection seems entirely justified. It points up the considerable importance of this movement in the total Master Plan. If an additional 224,000 students (over the present 292,970) must be planned for in the ensuing decade, it stands to reason that the community college program must be expected to provide for somewhere in the vicinity of one-third of these, more or less equally divided between full-time and

part-time students. The reasons for this are fairly clear: (1) the proximity to the student's home; (2) the low cost both to the student and to the Commonwealth and (3) the provision for types of programs useful in training young people for semi-professional opportunities in the home community. The community college movement will not have served its purpose in Pennsylvania until sufficient institutions have been established to cover the entire state, making commuting possible for the preponderant number of students who seek this level of higher education.

The Master Plan proposes, therefore, that funds be made available for (1) planning grants to determine the need and feasibility of a new community college, and for (2) start-up costs as an encouragement to local communities to establish community colleges where these will further the development of the Commonwealth System.

There are many problems which these institutions necessarily face in their early years, such as the provision of adequate physical facilities which go beyond classroom space, the determinaton of programs sufficiently comprehensive to serve the needs of all the students, the furnishing of necessary counseling services, the maintenance of standards, the fulfilling of fiscal responsibilities, etc. It is not the purpose of the Master Plan to suggest solutions for each of these, but rather to recommend a systematic approach which will bring these problems to light and provide an adequate basis for their resolution.

The community college movement was designed in Pennsylvania to extend educational opportunity, but to do this in response to community, or area, need. Each community college has its own board of trustees with relatively broad powers concerned with programs and standards; this is as it should be. On the other hand, two things are important for the success of each community college: (1) adequate knowledge of experience being gained elsewhere in the country; and (2) guidance from each other and from those who have responsibility for the operation of the Commonwealth System of Higher Education. Planning on its own, it is possible for any one community college either to operate on a level below that intended or to over-extend itself in one direction and, hence, fail to serve the comprehensive purposes originally designed. Only more than normal leadership on the state level will insure reasonable equivalence of programs and accomplishment, particularly in the years immediately ahead.

The Board, therefore, proposes that a Community College Coordinating Council be established, the membership to be composed of one person representing each community college, with the Commissioner of Higher Education serving as its ex officio presiding officer. The establishment of the office of Commissioner of Higher Education is part of the plan for reorganization of the Department of Public Instruction. (See Appendix II) The Coordinating Council should have the following duties:

(1) To help in the coordination of programs in the community colleges.

(2) To consider multiple use of resources and any other matter which may add to the effectiveness of two-year institutions.

The existence of a Coordinating Council would provide continuing liaison among the community colleges, and would have built-in opportunity to know both what other institutions in the same category are doing and how effectively they operate. It would serve as a vehicle for representing the community colleges collectively as a segment in the Commonwealth System of Higher Education.

The State College Segment

This group consists of 13 state colleges and The Indiana University of Pennsylvania. As pointed out previously, the enabling legislation (The Act of December 16, 1965, P. L. —, Act 430) gave Indiana the privilege of offering advanced degrees ordinarily offered only by institutions having sizeable library and laboratory facilities and a faculty having strong research background and experience.

This legislation was passed at a time when it was uncertain what provision could or should be made for university education in the western part of the state. Legislation placing the University of Pittsburgh among the universities in the Comonwealth System obviates the present necessity of developing Indiana University to qualify for inclusion in the Commonwealth University Segment. Meanwhile, Act 430 opens the way for Indiana, or any of the other State Colleges, to be included in the University Segment, as time and circumstance may dictate.

The Master Plan is constructed on what present and near-future possibilities permit. Indiana is, therefore, classified among the 14 state institutions whose primary responsibility is for undergraduate instruction and instruction on the level of the master's degree. The achievement of quality on these levels is itself a rather formidable responsibility for the next few years. It must be borne in mind that only within recent years have these institutions been asked to strengthen their faculties to offer the bachelor of arts degree and to grant the master's degree.

For the immediate future, the Board recommends

that these institutions be allocated major responsibility for undergraduate instruction in the arts and sciences and for the preparation of teachers on the undergraduate and master's degree levels. What steps, then, are necessary for the fulfillment of this objective?

First, the establishment of a Board of State College Trustees as a governing board with the following duties and powers:

1. To unify the policies and facilitate effective administration of the state colleges.
2. To assume the policy-making and other functions of the present boards of trustees of the state colleges.
3. To assume such policy-making functions as are now assigned by law to the Board of Presidents.
4. To establish specific educational policies governing the several state colleges, including, but not limited to, setting of enrollment goals for each state college; assignment of the role of each state college with respect to academic emphasis; approval of curriculum; definition of academic standards and standards of admission.
5. To establish and oversee administrative and financial policies and procedures.
6. To appoint college presidents, after consultation with the Boards of Visitors (see statement below) of the college concerned, and with the approval of the Governor.
7. To submit with recommendations to the Superintendent the annual operating budget requirements for the state colleges, and to review the biennial capital improvement programs.
8. To carry out the objectives established by the Council of Higher Education for the state colleges.

It is recommended that the Board of State College Trustees be composed of nine members appointed by the Governor from a panel nominated by the Council of Higher Education, each member to serve for a period of six years, except in terms or original appointment. The Commissioner of Higher Education should be an ex officio member of the Board. The Board should have an executive officer and appropriate staff. The present Board of Presidents should serve in an advisory capacity to the Board of State College Trustees.

The existing boards of trustees for each State College should become Boards of Visitors, with responsibilities redefined as follows:

1. To review all matters pertaining to the welfare and well-being of the college and its students and to make recommendations to the president with respect thereto.
2. To develop means and methods of establishing proper relations and understanding between the college (and its program) and the community in which it is located, and generally to provide liaison between the college and the community.
3. To advise the Board of State College Trustees on the selection of a president.
4. To advise the President with respect to plans and programs for the improvement of the college.

There are strong reasons for proposing a new Board of State College Trustees. One, the necessary coordination of institutional planning and state needs. Two, a uniform voice for all the State Colleges. Three, broader experience in considering the problems and needs of each particular institution. Four, the greater likelihood of equitable treatment for all institutions in the segment.

No Master Plan can be implemented without a structuring which brings a coordination *within* the segments of the Commonwealth System of Higher Education as well as *among* the segments. The latter will be dealt with later, but in terms of the State College segment it is difficult to see how coordination can take place with 14 separate boards, each having equal power within its own institutional sphere. The establishment of a Board of State College Trustees seems to be the best way in which adequate coordination and efficiency can be achieved.

A second step necessary for the proper governance of the State Colleges is to provide for greater fiscal and administrative autonomy on the institutional level. Responsibilities for the president of a State College should be specified and include the following, all subject to conformance with policies and programs established by the Board of State College Trustees:

1. The appointment of such officers, faculty members, and employees as may be necessary to administer the college.
2. The fixing of salaries, in accordance with established standards.
3. The determination of expenditures to be made for instructional, administrative, custodial and maintenance services and facilities from appropriations and allocations.
4. The making of rules and regulations for the college.
5. The preparation of the annual operating budget and the capital improvement program for presentation to the Board of Trustees.

While these are by no means all the responsibilities of a president, they are critical ones in terms of providing reasonable autonomy in the management of an institution of higher learning.

No additional coordinating council is proposed for the State College Segment, since the Board of State College Trustees will serve in this capacity.

The University Segment

There are three institutions in this group, The Pennsylvania State University, Temple University and the University of Pittsburgh.

Recent legislative action adding the last two institutions to this group greatly augments the Commonwealth's provision for opportunities on the university level at low cost to students. Each of these three universities has from 11 to 18 different colleges. All have sizeable graduate divisions. Two have schools of engineering, pharmacy, dentistry, law, and nursing. There are schools of agriculture, forestry, home economics, journalism, physical education, mineral industries, and art and architecture at Pennsylvania State University; schools of public health, social work and of public and international affairs at the University of Pittsburgh; and schools of allied health sciences, art, communications and theatre, music and a community college and technical institute at Temple University. Pennsylvania State University has a widespread extension program, Temple University and the University of Pittsburgh smaller ones. With the combined offerings of these three institutions, the Commonwealth is making available to students in the Commonwealth educational opportunity in all major university areas and fields.

Considerable effort must be devoted at this point to a coordination of the programs at the three universities, to the filling in of missing gaps, to the elimination of needless duplication, to the easy transfer of students and credits, and to the allocation of responsibility, geographic and otherwise.

Each of these institutions has a distinguished board of trustees, one-fourth or one-third of which is composed of Commonwealth Trustees which, as in the case of the trustees for the State Colleges, should be appointed by the Governor from a panel of names submitted by the Council of Higher Education. There is little question as to the public spiritedness of these trustees or to their sense of responsibility in meeting Commonwealth needs. They have large enterprises under their jurisdiction. No centralization of authority in a board of trustees for the three could accomplish as much in public good as the voluntary interest of each of the boards in the welfare of the separate institutions. Likewise, they are instrumental in securing private donations and grants to supplement Commonwealth investment.

The sizeable investment of Commonwealth funds in these institutions, however, demands a coordination of effort. It is, therefore, proposed that there be established a University Coordinating Council, this to be composed of three representatives selected by each of the universities, with the Commissioner for Higher Education serving ex officio as its presiding officer. The functions of the University Coordinating Council are as follows:

1. To coordinate programs in these institutions and to make recommendations to the Council of Higher Education concerning new graduate programs to be offered in any one of the institutions or jointly.
2. To plan, wherever possible, to achieve common operating procedures such as a similar accounting system, uniform minimum admissions requirements, transfer regulations, academic calendar.
3. To review institutional requests for yearly appropriations and to present these jointly to the Superintendent.
4. To review institutional requests for capital grants and to present these jointly to the Superintendent.

The two Coordinating Councils and the Board of State College Trustees are designed to increase interinstitutional cooperation in operational matters and leadership in the orderly development of higher education in each of the segments.

The Council of Higher Education

We come now to the most essential ingredient for the successful operation of the Commonwealth System of Higher Education, leadership on the state level. Previously in this section, the Board has proposed structures by means of which coordination can take place within the three segments of the Commonwealth System, a Community College Coordinating Council in the Community College segment, a Board of State College Trustees in the State College segment, and a University Coordinating Council in the University segment. There remains one further level of coordination, that is, *among* the various segments. This function should be performed by the Council of Higher Education.

It is well to specify some of the responsibilities which the Council of Higher Education must assume if the Master Plan is to be implemented effectively:

1. Full responsibility for the adoption of those policies necessary to put the Master Plan into operation and to expand or alter it as circumstances subsequently demand.

2. Serve as the chief coordinating agent for the Commonwealth System of Higher Education. This includes:
   (a) approval of all levels of instruction and programs which involve Commonwealth support.
   (b) allocation of responsibility among the institutions within the system, including responsibility for off-campus centers and branches, extension and continuing education programs.
   (c) encouragement of programs and activities to further the conduct of research on education and the educational process
   (d) review and approval of all requests for operating budgets of the institutions within the system
   (e) review and approval of all requests for capital improvements for the institutions within the system
   (f) acting as the coordinating agency for the development of standards, the distribution of funds, and the evaluation of performance for all federal programs in higher education operative in the Commonwealth for which state planning and coordination are required
   (g) receiving and reviewing long-range plans submitted from all private institutions in the state at times and in the form requested by the Council of Higher Education
   (h) review and assess the plans of publicly-supported and private institutions in order to provide correlation among them to insure maximum educational opportunty.

The Importance of Professional Staff to Support the State Board of Education

The responsibilities of the Council of Higher Education outlined and inherent in the Master Plan are of such scope as to demand the services of a high quality professional staff. The State Board of Education has in fact been given the power to "employ and fix the compensation of such staff as is deemed necessary to perform the duties of the Board." This implies that the Board can employ its own staff. The Board recommends that the staff to be assembled in higher education in the Department of Public Instruction be used until the review and evaluation of the adequacy of this structure takes place in 1969, after implementation of the present system has had opportunity to demonstrate its strengths and weaknesses.

The law further reads that "the Superintendent of Public Instruction or his designated representative shall be the chief executive officer of the State Board of Education." The Board proposes that the Superintendent designate the Commissioner of Higher Education as the chief executive officer of the Council of Higher Education. This proposal would give the Council of Higher Education an executive officer whose staff can assume direct and immediate responsibility for the fulfillment of the Council's objectives.

It is further suggested that the Department of Public Instruction be referred to as the Department of Education and the Superintendent of Public Instruction be called the Secretary of Education. In line with the relationship implied between the State Board of Education and the Superintendent of Public Instruction, it is recommended that the Superintendent of Public Instruction be appointed by the Board and be responsible to it. These recommendations may require constitutional amendments.

The Commonwealth's investment in higher education will reach such proportions that only sufficient staff with the highest professional competence will be adequate for the task. Furthermore, since the Master Plan's proposals for the governance of the Commonwealth System of Higher Education is a combination of centralized and decentralized authority, those in staff positions on the state level must be of such a calibre as to merit the respect of their peers in individual institutions. It is recommended that salary levels be established for the top staff positions at figures likely to attract highly qualified professional people who might otherwise be presidents or deans of individual institutions.

The State Board of Education

The Master Plan has proceeded from coordination among institutions in the three separate segments of the Commonwealth System of Higher Education to coordination among the segments by the Council of Higher Education. There is one higher level still, concerned with the coordination of higher education and basic education. This is the responsibility of the State Board of Education, which has within its purview the entire spectrum of educational opportunities within the Commonwealth of Pennsylvania.

Chapter VII

AID TO STUDENTS AND POTENTIAL FACULTY MEMBERS

Commonwealth concern for higher education cannot be limited to support of educational institutions. It must give attention to students, their financial need, and their selection of appropriate program and institution. Furthermore, it must give support to the recruitment of faculty personnel. This Chapter is devoted to these two important problems.

A Commonwealth Scholarship Program

It is one of the pre-suppositions of the Master Plan that it is the responsibility of the Commonwealth to provide every high school graduate with the opportunity to further his education in whatever direction and to whatever level are commensurate with his interest and ability. In providing a Commonwealth System of Higher Education, Pennsylvania is discharging the major part of its responsibility by providing low-cost opportunities at these institutions. At the same time, there are manifold individual differences, and some students may well find their greatest opportunity in terms of program or intellectual climate in attendance at one or another of the private institutions. To the extent that the cost factor may be minimized, choice is free.

It is proposed, therefore, that the Commonwealth support a program of financial assistance which will provide reasonable financial supplement to the individual's personal resources to permit him to select whatever private or public institution he prefers. This position is supported by the fact that the net cost of college education in relation to per capita income shows that the Pennsylvania student pays more for his education than in any of the nine other most populous states.

Pennsylvania has had some modest background in scholarship support. For many years, funds have been provided for one hundred scholarships at $250 per year and eighty scholarships at $200 per year awarded on a competitive basis and limited to a maximum of four years, the scholarship holders being selected from among thousands of applicants.

As early as 1881, Senatorial scholarships were offered by The Pennsylvania State College. Today, six schools participate in a program of Senatorial scholarships worth about $2.5 million annually: Lincoln University, Moore College of Art, Pennsylvania State University, Temple University, University of Pennsylvania and University of Pittsburgh. This program was established to help in aiding needy students and, in the absence of any other program, served the purpose well.

In 1963 the General Assembly established a guarantee loan program, through which students borrow from participating banks. This program has been enthusiastically received, attesting to the fact of wide student need.

In 1965 the General Assembly inaugurated a State Scholarship Fund (administered, as is the loan program, by the Pennsylvania Higher Education Assistance Agency) for (1) beginning students of high ability (2) beginning students having need, and (3) students already enrolled in college. The amount appropriated for this program in 1966-1967 was $12,600,000. The time has now arrived when Pennsylvania must face the problem of student assistance in more realistic terms, not simply because of the greatly increased numbers seeking an education but even more particularly because a significant number of these students will be denied educational opportunity if assistance on a fairly large scale is not made available.

There are many types of scholarships in Pennsylvania as elsewhere, some endowed, some institutionally supported, some foundation supported. The question at issue is not whether scholarship money is beneficial but rather what sort of scholarship program is appropriate for the Commonwealth of Pennsylvania in its own particular case and how it can be used to provide the best investment in the Commonwealth's own future. In view of the facts that such a significant proportion of Pennsylvania residents attend private institutions where tuition is necessarily higher than in publicly-supported institutions and that a scholarship program must be sizeable to have broad impact,

it is proposed that the Commonwealth use the money made available for undergraduate scholarships solely for those students who have need.

The Master Plan hence makes the following recommendations:

1. The State Scholarship Fund inaugurated in 1965 be regarded as having long-range and major significance in the provision of educational opportunity in the Commonwealth of Pennsylvania.
2. The State Scholarship Fund be expanded to at least $40,000,000 by 1968-69 based on the experience of the Higher Education Assistance Agency to date. This would provide continuing assistance to students presently receiving scholarship aid and make similar assistance available to entering students in the next two years. At that point, careful evaluation of the scope of the program should be made in relationship to the goal of insuring opportunity for higher education for every qualified Pennsylvania student.
3. The program of 180 competitive scholarships and the program of Senatorial scholarships be phased out and no new scholarships of these types be given.
4. The guarantee loan program be continued, expanded if circumstances demand.

The program envisioned here should provide approximately 52,000 scholarships in 1968-69. Even then scholarship aid will be going to less than 20% of the students attending college. It is entirely likely that this amount may need to be increased further at that point.

A Commonwealth Professorial Incentive Program

Crucial to the success of the higher educational enterprise, and particularly so at a time of great expansion, is the recruitment and training of faculty personnel. Only by exercising foresight and providing proper incentive can the Commonwealth be reasonably assured of a continuing, and increasing, flow of competent instructors. The Board therefore recommends a Professorial Incentive Program by virtue of which prospective college teachers may borrow up to $6,000 over a period of three years for full-time graduate education, these loans to be non-interest bearing while the student pursues his graduate work full-time. They should be forgiven at a rate of 25% per year providing the recipient teaches full-time in a Pennsylvania institution of higher learning, and bear interest at an appropriate rate only upon completion of graduate work. This program might well be administered by the existing Higher Education Assistance Agency. Assuming an average loan of $1,000 per year, the cost (excluding repayment) might amount to $500,000 the first year, $1,000,000 the second year, $2,000,000 the third year and possibly leveling off at a figure of somewhere aroung $4,000,000.

Chapter VIII

THE COMMONWEALTH'S CONCERN FOR PRIVATE HIGHER EDUCATION

In earlier chapters, the Master Plan has proposed a Commonwealth System of Higher Education which includes the types of institution for which the Commonwealth has legal obligations. This is the Commonwealth's major responsibility, and the Commonwealth will have to invest the largest portion of support for these institutions.

Consistently, however, the document has stated that the Commonwealth has benefited greatly from the contributions of private institutions of higher learning. The 118 private institutions in the Commonwealth are a product of varying circumstances—religious, geographic, traditional and social. Each has its own unique clientele and supporters. Some are among the most distinguished institutions of higher learning in their categories, many have reputations which know no state boundaries. The dual system of publicly-supported and private higher education has much to recommend it. The very competitiveness between the two types of institutions augers well for qualitative achievement. The Master Plan advocates that the Commonwealth further assist in the strengthening of these institutions.

Commonwealth Support for Capital Construction

Most of the private institutions have indicated willingness to expand in order to serve a larger public; this is in the Commonwealth's best interest. This does, however, involve capital expenditures in most cases. The Board proposes, therefore, that a Commonwealth Capital Assistance Fund be established to encourage private institutions in their expansion. The following stipulations should prevail:

1. Only regionally accredited or institutions which are recognized candidates for regional accreditation will be eligible.
2. Institutions will need to demonstrate that new facilities are necessary in order to increase enrollment, and this will normally involve site visitation.
3. The Commonwealth will make grants of 33 1/3% of construction cost for instructional facilities only.
4. A body similar to the State Commission on Academic Facilities should administer the program.
5. The Commonwealth Capital Assistance Fund should be equivalent in size to that of the federal Higher Educational Facilities program presently operating in Pennsylvania.

Commonwealth Support for Graduate Education

It was pointed out in an earlier chapter that enrollments on the graduate level will more than double in the next decade, and necessarily so to provide faculty for institutions of higher learning and to provide an increasing flow of highly trained manpower for a technological age. The Commonwealth universities are being asked in the Master Plan to give major attention to this responsibility. Yet the task is of such proportions that these universities, even with extraordinary effort and with maximum support, will need to have their contribution augmented by all private institutions offering academic work on this level. This being the case, it is recommended that the Commonwealth inaugurate a plan of state aid for doctoral programs in the arts and sciences and in engineering and for four years in medicine and in veterinary medicine, this aid to be available to all institutions not members of the Commonwealth System. It is further recommended that the Council of Higher Education base its aid for this purpose on a grant of $5,000 per year for each full-time student who is a United States citizen, who has completed at least one year of post-baccalaureate study, and who is accepted for candidacy in doctoral programs in arts and science and in engineering, and on a grant of $5,000 per year for each full-time post-baccalaureate student in medicine and in veterinary medicine. These grants are intended to help institutions finance the costs of such graduate programs.

Correlation with Private Institutions

Primary concern has been given in this document to delineating the Commonwealth's relationships to those institutions for which it has legal and financial responsibility and to describe modes of operation which will provide efficient management. To do this without reference to the private sector would be to ignore a great potential for achieving the Commonwealth's higher educational purposes. Private higher education also serves public interest and its voice should be appropriately heard. It is therefore proposed that a Liaison Committee for Private Higher Education be established and that the basis for its membership be jointly determined by the Council of Higher Education and the Executive Committee of the Pennsylvania Association of Colleges and Universities with the end in view of ensuing representation of the varying types of private institutions.

The duties of the Liaison Committee for Private Higher Education must by nature be advisory in character.

This Liaison Committee can serve three important purposes:

1. to represent the cause of private education before the Council of Higher Education.
2. to advise the Council on behalf of private higher education in whatever ways the Council of Higher Education might deem appropriate.
3. to recommend ways and means of strengthening inter-institutional efforts among private institutions and between private and publicly-supported institutions.

Maintenance Aid to Private Institutions

The history of the Commonwealth is filled with examples of public aid to private institutions. At one point they received grants of land, at another grants to educate poor children, at another grants to educate teachers. There have been periods when there was aid to all institutions and periods when there was aid to none. There are a goodly number of institutions which have received aid at one time or another but do not now. The only institutions receiving state aid for maintenance purposes over a lengthy period of time have been The Pennsylvania State University (1887), the University of Pennsylvania (1903), the University of Pittsburgh (1907), Temple University (1911) and the State Colleges. There has been no consistency of policy of long-term rationale, even in terms of the institutions mentioned. In 1965-66 there were 18 state-aided degree-granting institutions exclusive of the three which are to become part of the Commonwealth System. In many cases these are special purpose institutions which in other states would not be regarded as qualifying for maintenance support, except as parts of a multi-purpose institution.

Since it is difficult, if not impossible, to provide rationale for state aid to some institutions and not to others, the system should be terminated. At the same time, recognizing the significant contribution to the Commonwealth which presently-aided institutions are making and the desirability of not penalizing any institution by virtue of the introduction of a Master Plan for the future, it is recommended that present maintenance aid to independent institutions not qualifying for doctoral program support be frozen at the present levels and that no additional institutions be considered for this support.

In the case of institutions whose support for doctoral programs will not equal present state aid, support should be maintained at the 1966-67 level until aid for doctoral programs equals that amount—at which time maintenance aid will be discontinued. Doctoral support will, in effect, not begin until it reaches the amount of present maintenance aid.

The essential purpose of the Master Plan is to bring order into planning, operation and service in the Commonwealth's provision for higher education. It believes this can best be done through the delineation of what is included in the Commonwealth System of Higher Education and in proposing that future state aid to institutions not in the System be in terms of widening student opportunity on the undergraduate and graduate levels to attend private institutions, in granting capital aid to all those institutions which wish to increase their enrollment, and in supporting graduate education.

These proposals are considered to be basically sound and in the Commonwealth's best long-range interest.

Chapter IX

ESTIMATES OF COST DURING THE NEXT FIVE YEARS

Projection of costs of higher education over even a five-year period is subject to a substantial margin of error. There are many variables: (1) inflationary or deflationary tendencies; (2) the unparalleled demand for higher education, necessitating a rapidity of growth for which there is no precedent; (3) the provision of physical facilities capable of satisfying the demand; (4) courses of action determined by boards of trustees, the legislature and taxpayers; and (5) the competitive market for qualified faculty members. Nevertheless, the Master Plan would lack concreteness without some reasonable indication of its financial implications.

Certain factors lend credence to the projections which follow. They are:

1. *The Commonwealth's own appropriation experience during the previous five years.* From an expenditure of $50,490,792 in 1961-62 for State Colleges and state-aided institutions, the state has enlarged its share to approximately $157,000,000 for 1966-1967, a dramatic increase of 208% in five years.
2. *Comparison of the Commonwealth's appropriations with those in other states.* (The year 1965-66 is used since actual figures are available for that particular year.)

State	*Approximate Population as Compared to Penna.*	*Amount of Appropriations*
California	150%	$413,000,000
New York	150%	283,000,000
Illinois	90%	204,000,000
Michigan	70%	176,000,000
Texas	90%	165,000,000
Pennsylvania ..	—	104,000,000
Washington ..	35%	95,000,000
Indiana	50%	90,000,000
Ohio	90%	85,000,000

A recent survey reports that whereas Pennsylvania ranked 16th in per capita personal income in 1964, it ranked 49th in per capita expenditures for higher education. In that year Pennsylvania spent $12.62 per capita for higher education in contrast to the national mean of $25.69. While Pennsylvania's per capita expenditure is still quite low when compared to national averages, it does represent a two-year increase of almost 58%.

3. *Comparison of projections with other states.* Most of the states have made no long-range projections of the cost of higher education, not many even short-term ones, principally because of the difficulty of reaching firm and valid judgments. New York has probably given more attention to this problem than most other states and has projected a tripling of expenditures in a period of ten years. It is highly unlikely that Pennsylvania's expectancy will be any less, perhaps more, because of the relatively low comparative standing from which the Commonwealth must move.
4. *Commonwealth Responsibility for Operational Costs.*

	1966-67 Appropriations	*1971-72 (Projected)*
Community Colleges	$ 6,300,000	$ 11,385,000
State Colleges ..	35,854,945	82,027,000
Commonwealth Universities ..	79,149,998	188,952,000
State-aided Institutions ..	18,595,785*	18,094,685
Totals	$139,900,728	$300,458,685

Earlier comparisons with appropriations in other states were based on operational costs, exclusive of scholarship funds or capital grants, as is the case here. The state scholarships should amount to $40,000,000 in 1968-1969. The Professorial Incentive Program recommended should cost somewhere in the vicinity of $4,000,000 by 1971-1972. Grants for graduate education will amount to $5,965,500 in 1966-67 and $8,948,-

* As of October 4, 1966. Several appropriation bills not finally approved.

200 by 1971-72 in addition to whatever amount replaces maintenance aid by that time. This means the total yearly operational costs for which the state will be responsible will be approximately $353,000,000.

No projected figures are included here for capital investment. Increases in amortization costs over a five-year period will have only modest effect on Commonwealth expenditure and will probably not add more than 5% to the total (perhaps $15,000,000).

The introduction of a Commonwealth Capital Assistance Fund for private institutions, based on contemplated undergraduate figures for the federal program and without amortization, would amount to $26,449,497 for 1967-68, $40,871,187 for 1968-69, and $52,548,669 for 1969-70. Amortization costs for this program would probably amount to $15,000,000 per year by 1971-72.

It is apparent that, if the Commonwealth is to meet the critical needs of higher education in the years immediately ahead, the cost will be considerable. What has been accomplished in the past five years is indicative of the fact that the Commonwealth recognizes the seriousness of its responsibility. Executive and legislative leadership, public demand, citizen support, and, above all, opportunity for youth, combine to make this a moment of decision on which much of the Commonwealth's future depends.

The Master Plan, by advocating a Commonwealth System of Higher Education, by defining responsibilities of its component segments, by presenting a rationale for fiscal support, by refining procedures for coordination, and by presenting justified bases for encouragement to all private institutions, attempts to bring order into higher education and through this to offer means by which the Commonwealth may systematically fulfill its educational obligations to its citizens, young and old.

Appendix I

INSTITUTIONS OF HIGHER EDUCATION IN PENNSYLVANIA AUTHORIZED TO GRANT DEGREES AS OF JULY 14, 1966

Academy of the New Church, The College and Theological School
Albright College
Allegheny College
Allegheny County Community College
Allentown College of St. Francis de Sales
Alliance College
Alvernia College

Baptist Institute for Christian Workers
Beaver College
Beaver County Community College
Blessed Sacrament Junior College
Bloomsburg State College
Bryn Mawr College
Bucks County Community College
Bucknell University
Butler Community College

Cabrini College
California State College
Carnegie Institute of Technology
Cedar Crest College
Chatham College
Chestnut Hill College
Cheyney State College
Christ the Savior Seminary
Clarion State College
College Misericordia
Combs College of Music
Crozer Theological Seminary
Curtis Institute of Music

Delaware Valley College of Science and Agriculture
Dickinson College
Dickinson School of Law
Divinity School of the Protestant Episcopal Church
Drexel Institute of Technology
Dropsie College
Duquesne University

Eastern Baptist College
Eastern Baptist Theological Seminary
Eastern Pilgrim College
East Stroudsburg State College
Edinboro State College
Elizabethtown College
Evangelical Congregational School of Theology

Faith Theological Seminary
Franklin and Marshall College

Gannon College
Geneva College
Gettysburg College
Gratz College
Grove City College
Gwynedd-Mercy College

Hahnemann Medical College and Hospital
Harcum Junior College
Harrisburg Area Community College
Haverford College
Holy Family College

Immaculata College
Indiana University of Pennsylvania

Jefferson Medical College of Philadelphia
Juniata College

Keystone Junior College
Kilroe Seminary of the Sacred Heart
King's College
Kutztown State College

Lackawanna Junior College
Lafayette College
Lancaster Theological Seminary
LaRoche College
LaSalle College
Lebanon Valley College
Lehigh County Community College
Lehigh University
Lincoln University
Lock Haven State College
Lutheran Theological Seminary (Co-ed)
Lutheran Theological Seminary
Lycoming College

Manor Junior College
Mansfield State College
Mary Immaculate Seminary and College
Marywood College
Mercyhurst College
Messiah College
Millersville State College
Montgomery County Community College
Moore College of Art
Moravian College
Moravian Theological Seminary
Mount Mercy College
Mt. Aloysius Junior College
Muhlenberg College

Northampton Area Community College
Northeastern Christian Junior College
Novitiate of St. Isaac Joques

Our Lady of Angels College

Peirce Junior College
Penn Hall Junior College
Pennsylvania College of Podiatry
Pennsylvania Military Colleges
Pennsylvania College of Optometry
Pennsylvania State University
Point Park College

Philadelphia College of Art
Philadelphia College of Bible
Philadelphia College of Osteopathy
Philadelphia College of Pharmacy and Science
Philadelphia College of Textiles and Science
Philadelphia Community College
Philadelphia Musical Academy
Pittsburgh Theological Seminary

Robert Morris Junior College
Rosemont College

Sacred Heart Junior College
Shippensburg State College
Slippery Rock State College
Spring Garden Institute
St. Charles Borromeo Seminary of Theology
St. Fidelis College and Seminary
St. Francis College
St. Francis Seminary
St. Joseph's College
St. Vincent's College
Seton Hill College
Susquehanna University
Swarthmore College

Temple University
Theological Seminary of the Reformed Episcopal Church
Thiel College

University of Pennsylvania
University of Pittsburgh
University of Scranton
Ursinus College

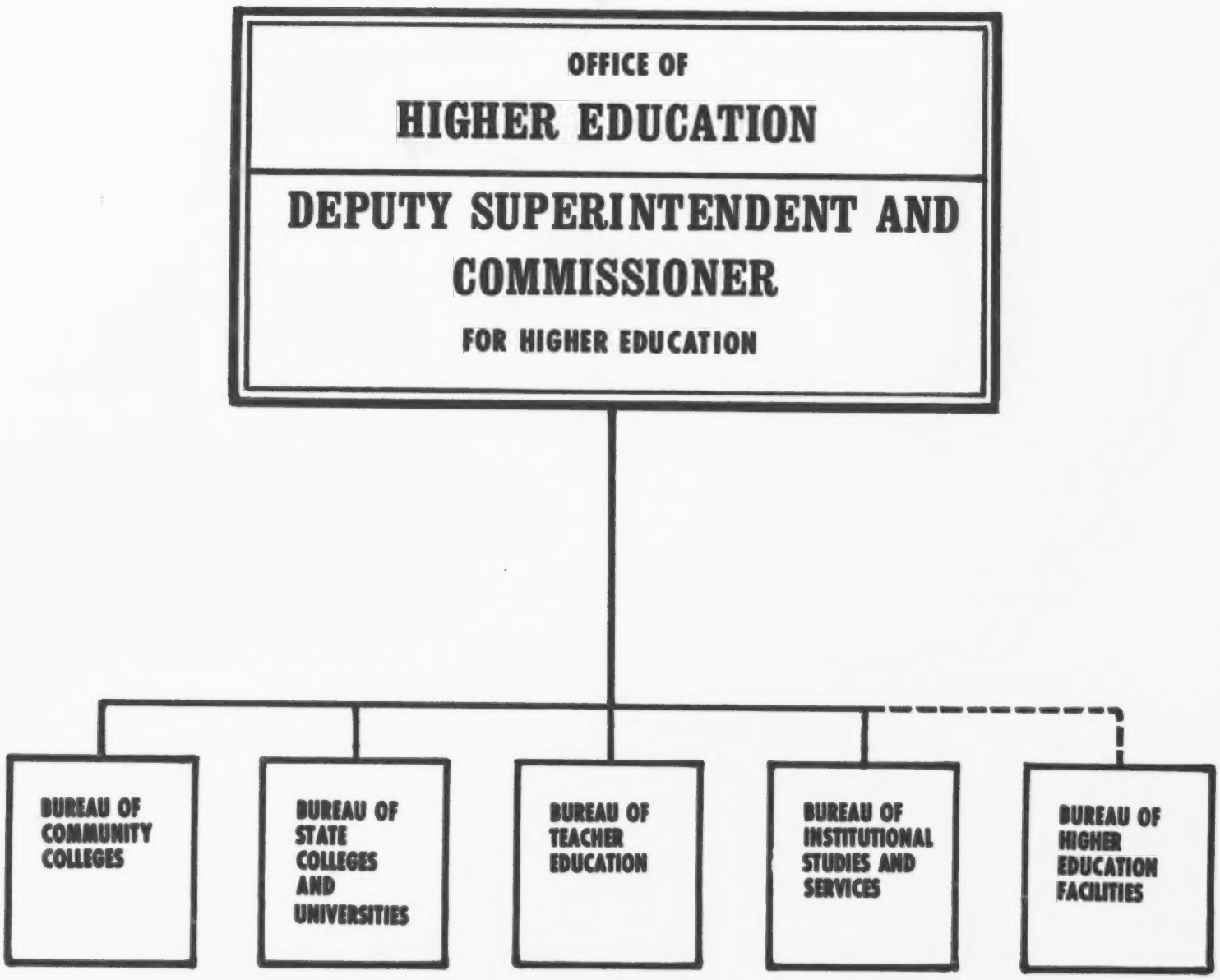
Valley Forge Military Junior College
Villa Maria College
Villanova University

Washington and Jefferson College
Waynesburg College
West Chester State College
Westminster College
Westminster Theological Seminary
Wilkes College
Williamsport Area Community College
Wilson College
Woman's Medical College of Pennsylvania

York Junior College

Appendix II

PROPOSED* REORGANIZATION OF THE OFFICE OF HIGHER EDUCATION, DEPARTMENT OF PUBLIC INSTRUCTION


OFFICE OF
HIGHER EDUCATION
DEPUTY SUPERINTENDENT AND COMMISSIONER
FOR HIGHER EDUCATION
BUREAU OF COMMUNITY COLLEGES
BUREAU OF STATE COLLEGES AND UNIVERSITIES
BUREAU OF TEACHER EDUCATION
BUREAU OF INSTITUTIONAL STUDIES AND SERVICES
BUREAU OF HIGHER EDUCATION FACILITIES

*Authorized by Governors Executive Board October 17, 1966 and now in operation.